

**DEPARTMENT OF DEFENSE AUTHORIZATION FOR
APPROPRIATIONS FOR FISCAL YEAR 2005**

HEARING

BEFORE THE

COMMITTEE ON ARMED SERVICES

UNITED STATES SENATE

ONE HUNDRED EIGHTH CONGRESS

SECOND SESSION

ON

S. 2400

TO AUTHORIZE APPROPRIATIONS FOR FISCAL YEAR 2005 FOR MILITARY
ACTIVITIES OF THE DEPARTMENT OF DEFENSE, FOR MILITARY CON-
STRUCTION, AND FOR DEFENSE ACTIVITIES OF THE DEPARTMENT OF
ENERGY, TO PRESCRIBE PERSONNEL STRENGTHS FOR SUCH FISCAL
YEAR FOR THE ARMED FORCES, AND FOR OTHER PURPOSES

**PART 4
AIRLAND**

MARCH 11, 24, 30, 2004



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**DEPARTMENT OF DEFENSE AUTHORIZATION
FOR APPROPRIATIONS FOR FISCAL YEAR
2005**

THURSDAY, MARCH 11, 2004

U.S. SENATE,
SUBCOMMITTEE ON AIRLAND,
COMMITTEE ON ARMED SERVICES,
Washington, DC.

ARMY TRANSFORMATION

The subcommittee met, pursuant to notice, at 2:01 p.m. in room SR-232A, Russell Senate Office Building, Senator Jeff Sessions (chairman of the subcommittee) presiding.

Committee members present: Senators Sessions, Dole, Lieberman, and Clinton.

Majority staff members present: Ambrose R. Hock, professional staff member; and Thomas L. MacKenzie, professional staff member.

Minority staff members present: Daniel J. Cox, Jr., professional staff member; and Creighton Greene, professional staff member.

Staff assistants present: Andrew W. Florell and Sara R. Mareno.

Committee members' assistants present: John A. Bonsell, assistant to Senator Inhofe; Arch Galloway II, assistant to Senator Sessions; Frederick M. Downey, assistant to Senator Lieberman; and Andrew Shapiro, assistant to Senator Clinton.

**OPENING STATEMENT OF SENATOR JEFF SESSIONS,
CHAIRMAN**

Senator SESSIONS. The subcommittee will come to order. We're not real sure what our afternoon schedule is going to be. They had earlier predicted some votes at 2:15, but I've not received confirmation, and it was just a prediction. Our plan certainly should be to go forward to hear the testimony of our distinguished guests and to make some opening statements. We will probably have time to complete our work, but we may be interrupted as we go forward.

The Subcommittee on Airland meets today to receive testimony on the fiscal year 2005 President's budget request for Army transformation. I welcome this distinguished panel today.

First, I would like to take a moment to recognize our ranking member, Senator Lieberman. He is a thorough expert on national defense, a man of great integrity and insight, who's listened to by both sides of the aisle whenever he speaks on these matters. It's

a pleasure for me, Senator Lieberman, to work with you. I value your insight and your commitment to this country.

I want to recognize, also, the men and women of our active, Reserve, and National Guard components, supported by civilian employees and contractors, who have been successful in executing military operations around the world in the ongoing war on terrorism. This is proof of the training, equipment, and readiness that you have provided them. Their service and sacrifices, and the sacrifices of their families, are deeply appreciated. I've talked with a number of families who have lost loved ones in Iraq and Afghanistan, families from Alabama. I've visited our soldiers at Walter Reed, and I know, as you do, the real, personal sacrifice that is being made.

Today's hearing is the first of two hearings we will have on Army programs. Our focus this afternoon will be transformation. On March 30, we'll have a hearing on Army aviation, specifically focusing on the termination of the Comanche armed reconnaissance helicopter program. It's something that I've had an interest in and supported over the years, and I know Senator Lieberman has as well. We will be talking about that and have a full opportunity to discuss it.

The Airland Subcommittee has supported the Comanche program in previous budget requests, and we are concerned with the impact of the termination on the future Army capabilities. I have, based on what I know today, decided that this termination is justified, but we will be going into it in more detail as time goes by, and we want to be sure, if there is a termination, that the funds that were allocated to that program will be used to improve Army aviation.

For fiscal year 2005, the Army requests \$98.5 billion, \$2.7 billion more than appropriated in fiscal year 2004, and supports the continuation of the Army transformation efforts. Adjusting for the Comanche termination, the Army requests \$12.8 billion in procurement, including \$905 million for the Stryker vehicles, for the fifth of six Stryker brigades, and \$2.7 billion for Army aviation programs, and \$9.3 billion in research, development, tests, and evaluation (RDT&E), including \$3.2 billion for Future Combat Systems (FCS), a \$1.5 billion increase over the amount appropriated in fiscal year 2004. FCS is one of the key programs for the Army transformation to the future force, and we have several questions regarding this program.

As I noted earlier, today's hearing will focus on Army transformation. With the new chief of staff, the three axes of Army transformation—the Objective Force, Interim Force, and Legacy Force—have morphed into a current force that is organized, trained, and equipped for joint, interagency, multinational, full-spectrum operations, and a future force and operational force that will be based on network-centric capabilities. This is the Army's fourth year of transformation, and we are interested in hearing the progress the Army has made to date, particularly since they signed the \$14.5 billion contract for the system development and demonstration phase of the program.

The subcommittee will not only focus on Army transformation, but also on programs supporting Operation Enduring Freedom (OEF) and Operation Iraqi Freedom (OIF) and other deployed

Army forces. We are interested in hearing your views on the chief of staff's plan to restructure active and Reserve components to create a modular force that is intended to provide joint and expeditionary capabilities to the combatant commanders.

I support this initiative and believe the Army has taken a prudent approach to addressing issues related to high-demand, but low-density units and rotational requirements; however, there are still unanswered questions related to both near- and far-term requirements and how the Army intends to fund the restructure.

We also ask you to address the impact of Operations Enduring Freedom and Iraqi Freedom on the current modernization plan, including costs associated with the plan. We understand the Army will use operations and maintenance funding to reset equipment as it is redeployed from Operation Iraqi Freedom. But we also understand that the Army has unfunded requirements in the procurement accounts for equipment attrited during the current operations. I am concerned that current operations will create resource challenges that can affect, adversely, transformation.

The Army has made tremendous progress in its transformation initiative, and, even with Comanche's termination, this budget request appears to support the continued development of systems for Army transformation.

Secretary Bolton, General Casey, and Major General Curran, we welcome you here to the Airland Subcommittee. I want to commend each of you for your outstanding leadership that you've provided and continue to provide in these challenging times. We look forward to your testimony.

Before I yield to my esteemed colleague, we have a special guest today. We welcome Cindy Curran, Major General Curran's wife. Good to see you. Thank you for being here with us.

Senator Lieberman.

STATEMENT OF SENATOR JOSEPH I. LIEBERMAN

Senator LIEBERMAN. Thanks, Mr. Chairman. The presence of General Curran's wife will make our questioning no less withering. [Laughter.]

But it's nice to have you here, Mrs. Curran.

I thank you, Mr. Chairman. I thank you for your leadership of this subcommittee and for your service to our country. It has been really an honor to get to know you. I must say, when I first came back, Senator Warner said that I had been away without leave. I told him that I actually felt as if I had been actively deployed. [Laughter.]

But, in any case, it is an honor to return to the Senate with people like yourself, and to work together in the best tradition of our country across party lines to do what is right to protect our national security and to support the men and women in uniform. You've set a high standard for that, and I look forward to working with you this year in pursuit of the goals that I know we share.

Mr. Chairman, over the last 5 years, now in my sixth year on this subcommittee, I've been privileged to serve as both chair and ranking member. In that time, I've worked with my Republican colleague, strongly supporting the effort to transform the Army into a force more relevant to the new strategic environment that we are

now facing. I've also had concerns, as this has gone along, about how the Army was attempting to effect that transformation, and particularly concerned about what I saw and, I'm afraid, still see as the failure to adequately fund the effort.

In short, I've been concerned, and remain so, that the Army not be pressured to mortgage the future for the present. That goes to the affordability of the Army plan to modernize what used to be known as the Legacy Force, to field the Interim Force, and develop and field the Objective Force by 2010.

Over the 4 years that General Shinseki led the Army, I supported fully the development of both the air and ground components of transformation to the Objective Force and fully supported his view that those programs should be the Army's highest priorities. But I must say that I was concerned about the Army spending that \$10 billion to field the 6th Stryker Brigade Combat Team (SBCT) for the Interim Force, because I worried that the Army might move more quickly and less expensively to field an interim capability, and with nearly the same degree of effectiveness.

Once it was clear that the resources provided would not be sufficient, the Army chose to take some risk in the Legacy Force. It was something we talked about quite openly here because of the limitation on resources that the Army was being given, cancelling scores of programs, and underfunding many more, including the digitization required to field the tactical internet to all but the counterattack corps. Some of this was based on what we hoped at the time would be a strategic pause to make the risks tolerable. But, of course, it ended up being short-lived, and we have felt, since Afghanistan and Iraq, some of the consequences of the underfunding, such as insufficient sets of individual body armor, up-armored high-mobility multipurpose wheeled vehicles (HMMWVs), aircraft survivability, equipment and battlefield identification systems. Obviously, I applaud General Schoomaker, General Casey, and all of you for your efforts to get such equipment to the current force as quickly as possible—I know that you've done that in many of the cases I've mentioned—and to deal with other capability shortfalls in the force.

However, like his predecessor, General Schoomaker is now being forced to make some tough choices, and one of those is the one that Senator Sessions referred to: the termination of the Comanche, which we will hold a separate hearing on, on March 30, so I don't want to go into it in detail here. But, for quite a long time, what the Army told us—and I thought it was a strong argument—was that the Comanche would be the Army's future air combat vehicle and complement the ground FCS. I know—and I've heard the arguments—that the operational environment is now different than envisioned when Comanche was conceived, and the joint systems can help fill the Comanche void. But my concern really is that the primary reason for the termination was budgetary. Just as there were risks associated with underfunding the Legacy Force in recent years, there is risk associated, I want to suggest today, with underfunding Army transformation for the future.

The Army has vigorously argued that the future was its highest priority, and I believe that, and we put some resources there. But even in the context of a Defense Department budget that some in-

side Congress and some outside Congress feel is excessive, we're pressuring you to do a lot for the current force and the future force, and you're finding it hard to do it all.

Today, we want to look at the bigger picture of how the Army's ongoing operations in Afghanistan and Iraq, and in the larger war on terror have affected these modernization and transformation plans. As Army units rotate back from Iraq, there will be huge equipment costs as they are reset for follow-on contingencies. The bulk of the cost will be in the operation and maintenance accounts as equipment is repaired and serviced. Now, are there going to be additional acquisition costs? Of course. To replace combat losses, the Army has estimated that the total reset cost from the first rotation of forces in and out of Iraq, and the continuing rotation in and out of Afghanistan, will be in the range of \$5 billion, largely unfunded. There are also going to be some acquisition costs to add equipment as the Army moves to create the additional 10 to 15 active brigades in its structure and reorganize the remainder in the active and Reserve components to achieve a degree of modularity in design.

Like the Chairman, I'm quite encouraged by these plans. They make a lot of sense to me. But there is a cost, of course, and the cost of creating the 15 additional active-duty brigades I've seen estimated at over \$20 billion. We've seen no estimate for the cost of restructuring existing brigades in the Reserve components.

Now, the Army Chief of Staff believes he's going to be able to complete the restructuring as the Army resets the force, and that the cost of doing so will be largely covered through supplemental appropriations. Whether that will be so remains to be seen. Unfortunately, recent history is not totally encouraging. Even though the Army received approximately \$42 billion of the \$65 billion in fiscal year 2004 supplemental appropriations, it still has had to deal with nearly \$3 billion in unfunded war-related requirements.

For the fiscal year 2005 budget request, the Army has submitted a nonfunded priorities list of \$6 billion, including \$2.4 billion for the modularity requirements, and \$1.2 billion for fiscal year 2004 reset shortfalls. Some in the Army have further estimated a fiscal year 2005 supplemental requirement of nearly \$50 billion. The resulting shortfall could have a serious impact, again, on our Army transformation funding in the future, and potentially force the Army to delay or, at worst, terminate the FCS in order to meet current force requirements.

This is a reaction to reality. It is not that I'm blaming anyone. In part, it's our doing. We have to figure out—and that's what I think the chairman and I are saying—how best, in this resource-constrained active-deployment reality that we're living in, we can support what you're doing.

I remain concerned that the Army will sacrifice the future for the present. As pressing as the present is, we have to figure out a way to make sure that you're not forced to do that. Because I fear the result of that maybe that we will have personally modernized a current force that will end up being the future force. Clearly that partially modernized current force is necessary to do what we're doing now. But nothing stays static, we're going to be facing more sophisticated threats in the future, and we have a responsibility to

help you fulfill your responsibility to be ready to face those threats. That, I hope, is what this Airland Subcommittee can do in this session.

Thank you very much, Mr. Chairman.

Senator SESSIONS. Thank you, Senator Lieberman. Those views and concerns are matters we need to take seriously, and we appreciate that.

Senator Dole, it's great to have you with us. We thank you for your interest and your strong commitment to matters of defense and your regular attendance at our committees.

Senator DOLE. Thank you, Mr. Chairman. I want to thank our distinguished panel for appearing here today.

The global strategic environment, as we all know, is a complex and dangerous landscape. With the proliferation of technology and weapons of mass destruction (WMD), we're currently witnessing a fundamental change in the security environment. In the future, our potential adversaries will be significantly more capable of threatening our national security at home and abroad. As a result, we must remain ever vigilant, with an eye to the future as we resource our military to develop future capabilities.

Our Army has been, and continues to be, vigilant. As a result, it is relevant and it is ready. Through its ongoing transformation, our Army will be ready to defend our national security well into the future. I commend the Army for being proactive and for the tough resource-allocation decisions it has made to produce a feasible transformation plan.

Meanwhile, our Nation is at war, and we must do everything possible to support our brave men and women as they valiantly maintain the security of the American people. I look forward to hearing how we, on the Senate Armed Services Committee, can assist the Army in executing its transformation while it remains engaged in 120 countries worldwide. Thank you for being here today.

Thank you, Mr. Chairman.

Senator SESSIONS. Thank you, Senator Dole. Well said.

We will hear from each of you now. You could maybe discuss how you would like to divide your time. If we could stay around 15 minutes, that would be good. But if you have something you want us to hear, I hope that you will say it.

I'd just reiterate: we're at a point where we support future combat force, and the question we are having is, what equipment and technologies do you need to make it a reality? Then, do you have enough money to do it, or will you be able to have those resources on hand when the date in question arrives? That's part of what we're wrestling with. It's one thing to have a vision, but if you don't have the gas to get you down the road, we won't make it there.

Secretary Bolton, we're delighted to have you with us, and we appreciate so much your service. Maybe you could start us off.

STATEMENT OF HON. CLAUDE M. BOLTON, JR., ASSISTANT SECRETARY OF THE ARMY FOR ACQUISITION, LOGISTICS, AND TECHNOLOGY

Mr. BOLTON. Good afternoon. Thank you, Chairman Sessions, Senator Lieberman, and distinguished members of the Airland Subcommittee, for this opportunity to discuss Army transformation.

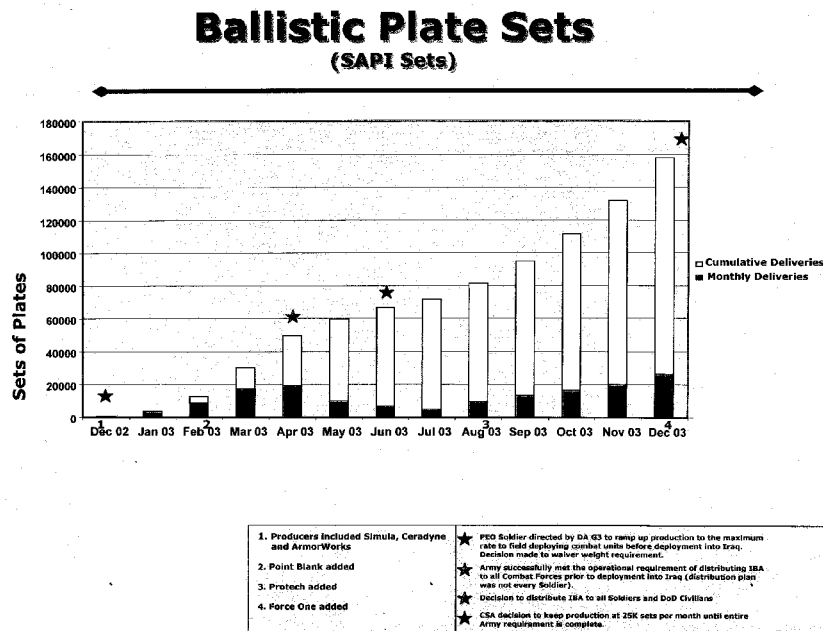
This is a time, as you've already indicated, of tremendous change. We are most grateful for your wisdom, your guidance, and steadfast support.

I respectfully request that my written statements be made a part of the record for today's hearing.

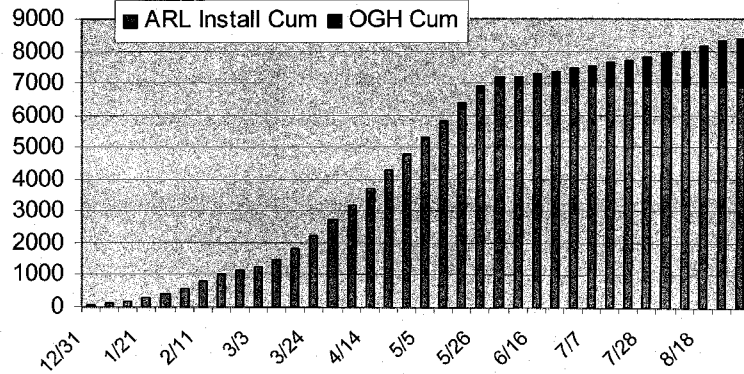
Senator SESSIONS. We will do that. Thank you very much.

Mr. BOLTON. In the interest of time, I will truncate my opening comments. I believe you have perhaps four charts to address one of the statements in your opening comments, both the chairman and Senator Lieberman.

[The information referred to follows:]

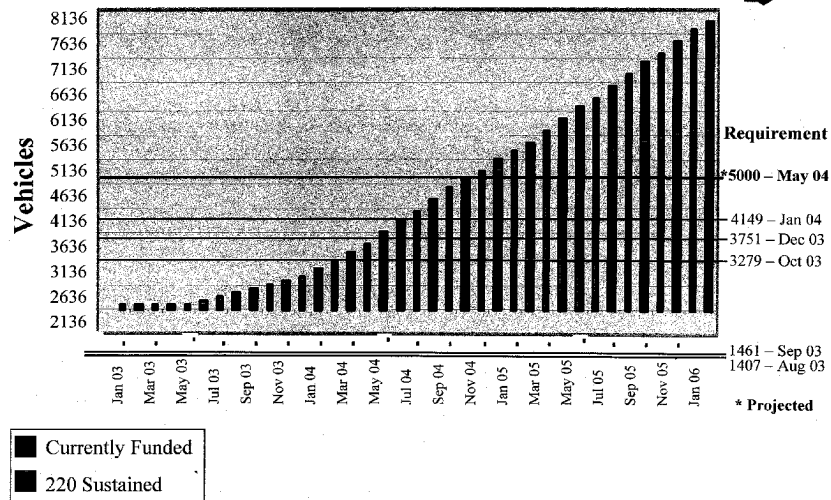


HMMWV Armor Kit Install Schedule

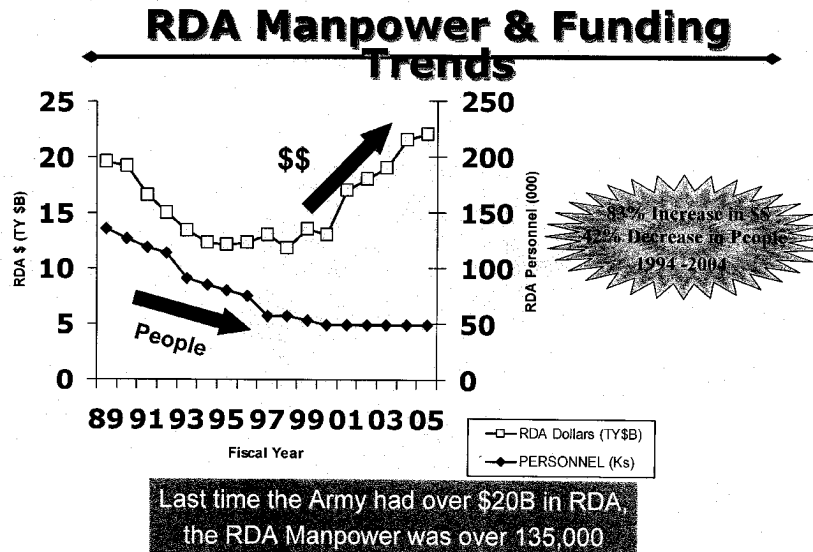


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M1114 AOR Requirements HMMWV Production Acceleration



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Senator SESSIONS. I'm not sure I have that.

Mr. BOLTON. Then I'll just talk to it.

We went across the berm just under a year ago in Iraq. The Army soldiers did an outstanding job, as did the other Services. We got to Baghdad in record time and concluded that phase of the operation. We then took our soldiers out of Abrams; we took them out of Bradleys, and we started the stabilization operation and put them into HMMWVs. The enemy adapted to that, and our soldiers increasingly came in harm's way from improvised explosive devices (IEDs) and from other weapons. We responded to that first with the small arms protection inserts (SAPI) plates. These are the inserts that go into the flak vests, and I will tell, just over a year ago we were producing about 2,000 sets per month. Today, we are producing 25,000 sets per month. There are 163,000-plus sets in country. By this time next week, everyone in Iraq and Afghanistan will have those vests and the SAPI plates. We will continue that, looking toward a goal of 840,000 sets.

Now, that's a testament to how rapidly we can turn things around, but, more importantly, our industrial base, because when we were at 2,000, we were looking at basically two contractors. Today, we have six contractors. If we look at HMMWVs, when we took our troops out of the Bradleys and Abrams and put them into HMMWVs. Those HMMWVs were not designed for the IEDs we encountered during the stabilization operation. Today, we have ramped up to 170 vehicles per month. These are new HMMWVs, armored HMMWVs. By May, we will be at 220. By July, we will have the total of uparmored HMMWVs of 4,149 vehicles. By this October, all of those will be over there to marry up with vehicles we have gotten from other places around the world. We will keep

that production as we go toward 5,000 vehicles. Once again, a testament to industry, that when we started this over a year ago, we were producing somewhere on the order of 20 to 30 vehicles a month; now we're up to 220 in the month of May. That's a testament, also, to how rapidly we can turn things around.

Now, who's doing this? A workforce that I'm very proud to lead and to represent—a workforce of 1,600 military, some of whom are in-theater today, working with the combatants to understand what they need and to provide that to them in as little as 72 hours—not months, not year, but hours—and also providing to soldiers equipment that they need, that they said they needed. If you have been over there, you see we now have arm pads, knee pads, and different sights for night vision and for the gun. We did 27,000 last year, we'll do 120,000 this year, and we'll continue that operation.

That workforce has been reduced over the last 10 years, and certainly since the fall of the Soviet Union, by nearly 50 percent; 1,600 military, 50,000 civilians are left today. Over the next 2 years, half the civilians are eligible to retire. Needless to say, that causes me some concern, and we're starting to work that.

Let me close this and turn the mike over to General Casey by saying the following. In 1971, a new lieutenant, who was in a war called Vietnam was flying in the Air Force, the best aircraft they had available, called the F-4. He went into that war well-trained and well-led. He left that war a little wiser, having lost seven of his colleagues, to include his boss. He realized, at that time, that while he had the best training and the best leadership, he did not have the world's best aircraft. He dedicated the rest of his time, from that point to today, to ensuring that every warrior had the equipment that he or she needed to be the world's number one. That lieutenant sits before you today, trying to realize the dream of making sure that our soldiers are, indeed, the best-equipped, the best-led, the best-motivated. I can tell you, for sure, they have all of that, and we're working day and night to make sure that happens.

On behalf of those men and women, I thank you and all the committee members, for your steadfast support. These charts here, on the SAPI plates and up-armored HMMWVs—your support in passing the fiscal year 2004 supplemental did that. It saved lives, and I thank you very much.

Let me turn the mike over now to our Vice Chief of Staff, General Casey.

[The prepared statement of Secretary Bolton follows:]

PREPARED STATEMENT BY HON. CLAUDE M. BOLTON, JR.

INTRODUCTION

Mr. Chairman and distinguished members of the subcommittee, thank you for this opportunity to report to you on Army transformation. It is my privilege to represent the Army leadership, the military and civilian members of the Army acquisition workforce, and the soldiers who rely on us to provide them with world-class weapon systems and equipment so they can successfully accomplish any mission at anytime, anywhere in the world.

This is a time of tremendous change, and we are most grateful for your wisdom, guidance, and strong support. Over the last year, our Army has met the demands of the global war on terrorism, with more than 330,000 troops deployed around the world in more than 120 countries. Our Army was instrumental in the defeat of Saddam Hussein and the subsequent liberation of more than 46 million people from op-

pression and despair. Our Army remains a central and critical participant in Operation Iraqi Freedom and Operation Enduring Freedom in Afghanistan. Although these and other operations have stressed the force, our soldiers have responded magnificently.

We are most grateful, too, for your continued support of our Army's transformation. The goals of Army transformation are to provide relevant and ready forces that are organized, trained, and equipped for full spectrum joint, interagency, and multi-national operations and to support future force development. Our future force is the operational force the Army continuously seeks to become—a strategically responsive, networked, precision, capabilities-based, maneuver force that is dominant across the range of military operations envisioned for the future global security environment.

The primary goal of Army transformation is moving from the capabilities of the current force into the future with the development of the future force. Optimized for strategic versatility, this lighter, more agile force will dominate land operations and greatly expand the options available to the Joint Force. Developments in technology and our pursuit of network-centric warfare will allow the Army to break our ties with the Cold War formations that relied on the principle of mass and the build-up of large forces. We will possess unprecedented situational awareness that will enable Army formations to maneuver with greater precision and dispersion. We will know where the enemy is and where our own people are, and we will be able to impose our will on the enemy at the time and place of our choosing. As the Army develops the future force, it simultaneously is accelerating select future doctrine, organization, training, materiel, leadership, personnel, and facilities capabilities into our current force. This process will be fundamental to our success in enhancing the relevance and readiness of our Army and prosecuting the global war on terrorism. Similarly, the operational experience of our current force influences the development of future force capabilities.

BALANCING CURRENT AND FUTURE READINESS

Balancing risk between current and future readiness remains a critical part of our Army's transformation process and one that requires continual assessment to ensure that plans and programs are aligned with overall requirements. Without question, the issue of current operational readiness is our Army's highest priority. During the last several years, our Army decided to accept a reasonable degree of risk to the readiness of our current force to permit investment in capabilities for our future force. This risk came in the form of reductions in and limitations to modernization and recapitalization programs. As part of the past four budget submissions, our Army made difficult choices to cancel and restructure programs, shifting resources to the development of transformational capabilities. Some of these investments have already produced results; for example, the new Stryker Brigade Combat Team (SBCT) formations now being fielded, the first of which is currently deployed on the battlefield in Iraq. Others are helping to develop emerging technologies and capabilities that will be applied to our force throughout the coming decade.

PROGRAMS

Stryker

While at war, the urgency to accelerate the development and fielding of new and enhanced capabilities to our fighting forces in the field has never been greater. The rapid fielding of the Stryker vehicle demonstrates our Army's ability to meet a combatant commander's urgent needs.

In 2003, our Army deployed our first SBCT, the 3rd Brigade, 2nd Infantry Division, to Operation Iraqi Freedom, delivering its enhanced capabilities to the Joint Force in record time: 4 years from broad concept to deployment. Exceptional support from Congress and the Office of the Secretary of Defense (OSD), along with close collaboration between the Army and industry made this achievement possible.

Stryker brigades are our Army's first truly network-centric force, filling the capability gap between light- and heavy-force units with an infantry-rich, mobile force that is strategically responsive, tactically agile, and lethal. Improved battlespace awareness and battle-command technologies embedded in our SBCTs enhance combat effectiveness and survivability by integrating data from manned and unmanned air and ground-base sensors and providing real-time, continuous situational understanding.

This spring, our second SBCT at Fort Lewis, Washington, will become operational. Our third SBCT, in Alaska, will be available in 2005. Continued support from Congress and OSD will ensure that subsequent brigades in Hawaii, Louisiana, and Pennsylvania are fielded between 2004 and 2008.

Army Aviation Modernization

A comprehensive review of Army programs has led to several strategic decisions regarding Army aviation. Because of lessons learned and experiences gained by the Army's recent 2½ years of combat in the global war on terrorism, as well as the operational environments envisioned in the foreseeable future, it is clear that the Army must provide the most effective survivability enhancements to our rotary and fixed-wing aircraft as soon as possible. We must upgrade, modernize, and rebuild our attack, utility, and cargo helicopter fleets, and replace our light observation and scout/attack helicopters as rapidly as possible.

With the termination of the Comanche RAH-66 helicopter program and the resources for 121 Comanche aircraft reallocated (through fiscal year 2011), our plans are to restructure and revitalize Army aviation to meet current and future needs. The Army plans to accelerate air crew protection and Aircraft Survivability Equipment (ASE) fielding initiatives to meet the evolving threat and provide every aircraft with the best possible equipment; modernize 1,400 aircraft to extend aviation capabilities beyond 2020; acquire nearly 800 new aircraft to build modular active and Reserve component aviation formations; accelerate the unmanned aerial vehicle program to extend battlefield awareness and strengthen manned-unmanned teaming; transform Reserve and National Guard aviation; and leverage the technology base and knowledge gained through the Comanche program for new joint aviation initiatives. The net result of this reallocation will be the new procurement, upgrade, recapitalization, or modernization of more than 70 percent of the rotary winged fleet.

Unmanned Aerial Vehicles (UAVs)

The Army is the first service to successfully pass initial operational test and evaluation with a UAV system. That system, the Shadow Tactical UAV, went from program initiation to a full-rate production decision in just 33 months. We now have four systems superbly supporting ground forces in Operation Iraqi Freedom that have flown more than 4,000 mission hours in theater. Twelve systems are fielded with 8 to operational units and 4 to the training base and an additional 12 will be fielded in fiscal year 2004. Ground commanders consider these essential for their Brigade Combat Teams to provide on-call and responsive surveillance, force protection, and reconnaissance. Hunter is our interim extended-range/multi-purpose UAV that supports the Division/Corps. Finally, Raven is a small UAV that weighs just four pounds and is easily transportable in a HMMWV. It currently supports ground forces in Operation Enduring Freedom where terrain considerations and small unit needs dictate this type of responsive lightweight small UAV. The Army is procuring 185 of these systems in fiscal year 2004 and equipping small units in Iraq and Afghanistan over the next several months—an excellent example of responsive acquisition and rapid equipping.

PATRIOT/MEADS

Patriot is the only fielded U.S. system capable of defeating Tactical Ballistic Missiles (TBMs). The Army strongly supports continued fielding of the Patriot Advanced Capability-3 upgrade to our soldiers. The Medium Extended Air Defense System (MEADS) is a cooperative program with Germany and Italy and is a ground-based terminal defense program. MEADS is intended to be a highly mobile, tactically deployable system to protect the maneuver force from short and medium range ballistic missiles, cruise missiles, and other air breathing threats. Beginning in fiscal year 2004, the Patriot and MEADS programs were combined to efficiently utilize the resources available to both programs.

Munitions

A key block in the foundation of our Army's capability is the mix of munitions needed to provide overmatch and dominant land operations against hostile forces. From bullets to grenades, artillery rounds to missiles, from precision point target to area suppression, our charge is to provide a mix of munitions across Army, Joint, and International Forces that address training needs, the multiple targets and the myriad of environmental conditions faced by our soldiers. The Army is the single manager for conventional ammunition across the Services and has numerous joint and international munitions programs (Joint Common Missile, Excalibur, Guided Multiple Launch Rocket System) in development. Managing the health of current stockpiles while planning for their replacement is essential for the success of current and future forces.

3rd Armored Cavalry Regiment Modernization (3ACR)

The Army will continue recapitalization and upgrade of the Abrams Main Battle Tank and the Bradley Fighting Vehicle in support of 3ACR modernization. This effort will provide 3ACR with an embedded digital capability commensurate to the 1st Cavalry Division and 4th Infantry Division with fielding projected for fiscal year 2006.

Future Capabilities

Our Army plans to field a number of systems this decade that will provide a foundation for the transformation of our current force capabilities into those needed by our future force. Once fielded, these systems will perform as an interdependent system of systems that will significantly enhance joint warfighting capabilities. The following are some of the key transformational systems that our Army will begin to field during the next 6 years.

The Network

The situational dominance of our future force will depend upon a comprehensive, ever-present, and joint-interoperable command, control, communications, computers, intelligence, surveillance, and reconnaissance (C⁴ISR) architecture that will enable the Joint Force Commander to conduct fully interdependent and network-centric warfare. This network will provide the backbone of our future force and the future Joint Force, enabling the maneuver commander to effectively coordinate battlefield effects. Some of the more important systems within the network include the following:

- Warfighter Information Network—Tactical (WIN-T). WIN-T will be the communications network of our future force, optimized for offensive and joint operations, while providing the combatant commander the capability to perform multiple missions simultaneously.
- Joint Tactical Radio System (JTRS). JTRS is a family of common, software-defined programmable radios that will become our Army's primary tactical radio for mobile communications.
- Distributed Common Ground System-Army (DCGS-A). DCGS-A is the Army component of the future Department of Defense (DOD) integrated, ground-based, ISR processing architecture composed of common hardware and software components enabling joint, net-centric operations.
- Aerial Common Sensor (ACS). This ISR system and platform will use robust sensor-to-shooter and links (such as DCGS-A ground stations) to provide commanders at every echelon the tailored, multi-sensor intelligence required for joint operations.

Future Combat Systems

The materiel core of our future force's maneuver unit of action (UA) is the Future Combat Systems (FCS), comprised of a C⁴ISR network and 18 manned and unmanned systems that are centered around the soldier. FCS will provide our soldiers greatly enhanced situational awareness, enabling them to see first, understand first, act first, and finish decisively. FCS will operate as a system of systems that will network existing systems, systems already under development, and next systems to be developed to meet the needs of the FCS-equipped UA. The network will enable improved intelligence, surveillance, and reconnaissance, enhanced analytical tools, joint exchange of blue and red force tracking down to the tactical level, battle command, real time sensor-shooter linkages, and increased synergy between echelons and within small units. FCS will be capable of generating networked lethal and non-lethal effects that achieve overmatch integrated with other Army, joint, national, and multi-national assets to bring those capabilities to the small unit level. In May 2003, FCS moved on schedule into the systems development and demonstration phase. Our Army is aggressively managing our FCS development effort and intends to achieve initial operational capability by the end of the decade.

Army Science And Technology

The Army Science and Technology (S&T) program provides our Army superiority in both human and materiel systems arenas—preventing technological surprise. The Army S&T program retains a dynamic portfolio of investments that are responsive to warfighter needs today and into the future. The priority for Army S&T is to pursue paradigm-shifting technologies that can alter the nature of the military competition to our advantage in the future and, where feasible, to exploit opportunities to accelerate the transition of proven technology to our current force.

The Army S&T program exploits technology developments from the other Services, defense agencies, and commercial industry as well as international commu-

nities. The S&T program focuses on technology relevant to our Army and joint capabilities. It synchronizes operational concepts development and acquisition programs through transformational business practices that speed technology fielding to the soldier. The Army's S&T program is balanced to satisfy the high payoff needs of the future force while seeking rapid transitions for critical capabilities to our current force.

Accelerated Acquisition And Fielding

We have adapted and continue to improve our acquisition and fielding processes. In 2002, as soldiers reported equipment shortages in Afghanistan and elsewhere, we implemented the Rapid Fielding Initiative (RFI) to ensure that all of our troops deploy with the latest available equipment. Equipment fielding schedules were revised to support unit rotation plans, and procurement and fielding cycles were radically compressed.

In coordination with field commanders and our soldiers, a list of more than 40 mission-essential items, including the Advanced Combat Helmet, close-combat optics, Global Positioning System receivers, soldier intercoms and hydration systems, were identified for rapid fielding. Laying the foundation for acquisition transformation, RFI already has equipped nine Brigade Combat Teams (BCTs). In fiscal year 2004, RFI will upgrade a minimum of 11 BCTs and 6 enhanced separate brigades serving in Iraq and Afghanistan. Additionally, we are accelerating fielding of select future capabilities to our current force. These items include thermal weapon sights, enhanced night vision goggles, Interceptor Body Armor, the Future Combat Rifle, and a new sniper rifle. It is the strong support of Congress that enables our Army to put this improved equipment in the hands of our soldiers.

Support from Congress has also enabled our Army to institute a Rapid Equipping Force (REF) initiative to work directly with operational commanders and find solutions to operational requirements. These solutions may be off-the-shelf or near-term developmental items that can be made available quickly. For example, REF established a coordinated effort to supply our forces with immediate solutions to counter Improvised Explosive Device (IED) threats. Currently, IED teams are on location providing expertise and materiel solutions to safeguard our soldiers. We are acting aggressively to improve the armor protection of our armored and light-skinned vehicles. Other examples of REF products are the Well-Cam and PackBots. The Well-Cam is a camera, attached to an ethernet cable and a laptop, that enables soldiers in theater to search wells for weapons caches. PackBots are operational robots used to clear caves, buildings, and compounds so soldiers are not put in harm's way unnecessarily.

RFI and REF provide timely support to our relevant and ready forces and to combatant commanders, and facilitate Army transformation.

Chemical Demilitarization

The United States remains the world's leader in safely destroying stockpiled chemical weapons covered by the Chemical Weapons Convention. Late last year, we completed a significant task with the closing of the chemical weapons destruction facility at Johnston Atoll in the Pacific. Over the last decade, we successfully destroyed 4 million pounds of nerve and blister agents configured in more than 412,000 individual items without any serious workplace incidents or releases to the environment. Today, we continue to destroy these aging, outdated weapons at three additional stockpile sites: Tooele, Utah; Anniston, Alabama; and Aberdeen, Maryland. The Anniston incineration facility just came on line in August of last year, and it has already successfully and safely destroyed more than 19,000 individual munitions. We are implementing state-of-the-art destruction technologies at each site, and we are proud of our record in maintaining the highest caliber of workplace safety and environmental protection as we continue with our mission at these sites.

Within this calendar year, we will have three more operational facilities, one each in Umatilla, Oregon; Pine Bluff, Arkansas; and Newport, Indiana. This means that by the end of the year, the chemical demilitarization program will have six operational facilities located across four time zones. We will have four incinerators and two neutralization plants operating, and thousands of employees working around the clock, to eliminate the risks posed to the communities by the continued storage of these weapons.

In addition, the non-stockpile program has made significant progress in destroying recovered chemical weapons that are not part of the national stockpile. In fact, the non-stockpile program recently announced that it has destroyed more than 80 percent of the former production facilities, all of the class III items and is making significant progress against other non-stockpile materiel. The program has designed and implemented new transportable technologies that allow the Army to analyze re-

covered munitions without opening or disturbing them, as well as transportable treatment systems that allow on-site destruction of chemical agent, eliminating the need to transport agent-filled weapons to another facility. These new technologies greatly enhance the Army's ability to respond to new discoveries of chemical munitions.

Our challenge this year is to ensure that we maintain vigilance in protecting worker and community safety, and that we protect the environment at each stockpile and non-stockpile site. This challenge will be unprecedented, given the scope of activities that will be ongoing each day for the next few years at sites across the country, but I am confident that our program team will meet these challenges as they have every day since this program began.

The U.S. Army is the only organization in the world that has successfully destroyed so many, and such a variety of, chemical weapons, and has demonstrated that it can do so safely. We intend to continue to lead the world in the development and use of state-of-the-art technologies to eliminate the threats posed by chemical weapons.

COALITION PROVISIONAL AUTHORITY

On May 21, 2003, the Deputy Secretary of Defense designated the Secretary of the Army as the Executive Agent for the Office of Reconstruction and Humanitarian Assistance, later to become the Coalition Provisional Authority (CPA) in Iraq. On January 14, 2004, the Deputy Secretary of Defense further assigned responsibility for Acquisition and Program Management Support for CPA to the Secretary of the Army. The Army is the lead Service, helping the Iraqi people build a stable and democratic country.

Contracting Support

The Army, as executive agent, provides contracting and program management support both in Iraq and in the United States. We are charged with procuring all non-construction items and services to meet the humanitarian needs—the basic needs—of the Iraqi people as well as the economic reconstruction and repair of Iraq's infrastructure. To date in total, more than 1,500 contracts valued at more than \$9.7 billion have been awarded. Of that total, more than 1,300 contracts totaling \$1.3 billion have been awarded by our contracting office in Iraq. These contracts were awarded for the repair and renovation of schools, banks, railway stations, clinics, mosques, and water treatment plants. These contracts were awarded to provide police and fire fighters with uniforms and equipment; hospitals with badly needed supplies; electrical power system equipment; rescue equipment; and buses. In addition, our contract awards are helping to build playgrounds, youth centers, emergency housing, and roads, sewer, and irrigation systems.

Again, of the overall total of over \$9.7 billion, contracts awarded within the United States total \$2.5 billion for more than 200 contracts for restoring Iraqi oil; shutting down and repairing oil wells; fire fighting; explosive ordnance demolition; restoring Iraqi electricity; radio installation throughout Iraq; laptops; and emergency medical personnel in each of Iraq's 18 governorates.

On January 6, 2004, the Army released seven design/build construction solicitations. Proposals were received in February and are under evaluation. These 7 solicitations will result in 10 contracts in support of electrical, public works and water, water resources, transportation, communications, and security projects. Contracts will be awarded using best value evaluation methodology based on technical, management, past performance, and cost factors.

Program Management Office

Led by Admiral (Retired) David Nash, the Program Management Office (PMO) for rebuilding Iraq is located in Baghdad with a support office located in the Pentagon. As the requirement focal point for all Iraqi reconstruction contracting, the PMO is responsible for oversight and implementation of the \$18.4 billion appropriated by the U.S. Congress to support the reconstruction of Iraq's infrastructure. The construction sectors are oil, electricity, public works and water, security and justice, transportation and communications, and buildings, education, and health.

Overall, \$12.6 billion will be spent towards actual construction over the next few years, and \$5.8 billion will be spent on providing equipment, supplies and material to help support the construction. Computers are needed to monitor and control electrical and water systems; vehicles are needed to transport materials or to support system maintenance; uniforms and supplies are needed to support the police and civil defense corps; and supplies are needed to support schools.

PEOPLE

The Army Acquisition Corps (AAC) is dedicated to supporting the warfighter with world-class capabilities. We provide professional development and unsurpassed education, training and acquisition experiences to our acquisition, logistics, and technology workforce that will support the fight, improve the force, and build the future.

With over a decade of downsizing activities and the anticipated retirements of 25 percent (eligible to retire based on 55 years of age and 10 years of service) or more of Army acquisition workforce personnel in the next 5 to 10 years, human capital strategic planning for the Army acquisition, logistics, and technology workforce is critical in order to proactively plan for the future acquisition workforce. Loss or diminishment of this highly skilled acquisition workforce will seriously impact warfighting capability and readiness unless dramatic steps are taken. The Army is using its human capital strategic planning process to define the current acquisition workforce, the required future acquisition workforce, and identify the actions that we need to take to make sure we have the right acquisition professionals where and when we need them in the future. Such planning will allow us to look at how many people we need with various technical skills and allow the leadership to prioritize needs based on our fiscal constraints. We have implemented process improvements that enhance productivity and facilitate transformation efforts and we continue to pursue acquisition excellence to make further productivity gains.

The Army acquisition community has partnered with DOD to develop aggressive marketing and recruiting strategies to attract and retain private sector talent to replace retiring workforce personnel and reinvigorate the current acquisition workforce to ensure that vital defense systems are developed and maintained. Within the Army, senior leaders have been given the authority to approve recruitment bonuses, relocation expenses, and retention allowances; authority to approve repayment of student loans; authority to approve advanced-in-hire rates; and authority to direct hire for certain civilian occupational series/grades. These authorities should assist Army supervisors/managers in addressing the potential talent loss. In addition, we are hiring recent college graduates, as well as qualified retired members of the Armed Forces in an effort to solve this situation.

The Army's acquisition, logistics, and technology workforce is a critical resource that requires unique education, training, and experience in order to perform vital acquisition functions. Acquisition personnel perform highly technical and specialized work in areas such as engineering, contracting, and logistics—skills essential for ultimate success on the battlefield.

The AAC is launching its own transformation effort after 13 years of initial development and acquisition mission execution. Transformation of the AAC is embedded within the Army's transformation in order to enable the AAC to conduct its mission. The AAC will align and horizontally integrate its transformation with the overall Army Campaign Plan; establish an Army acquisition core capability that develops, tests, fields, buys, inserts, and supports materiel and service solutions across full spectrum military operations, from all out war to defense of the homeland. Additionally, the AAC will develop flexible acquisition officers and civilian leaders that possess a diverse and well-rounded background in the supporting functions and phases of acquisition who are prepared to lead any complex, multi-functional acquisition command, agency, organization, or team.

The acquisition workforce is responding with great enthusiasm to our ongoing overseas operations. Currently, there are more than 680 individuals from our Program Executive Offices who valiantly serve our Nation in Southwest Asia. Of that number, roughly 300 members of the acquisition workforce—military, civilian, and contractors—are serving in Iraq.

PRODUCTION

The industrial base has responded magnificently to meet urgent needs in our ongoing operations in Iraq and Afghanistan. Providing body armor for our soldiers has been a great illustration of government challenging industry and industry responding superbly. Over the past year, industrial capacity for individual body armor has expanded 14-fold. From the production of raw materials through the industrial process to the fielding to soldiers, industry has stepped-up unwaveringly to the challenge, giving our soldiers life saving, bullet-stopping capability for the first time on the battlefield.

The other exceptional example of industrial response has been in adding armor to our tactical vehicles. As with body armor, we learned that the threat to rear echelon and patrolling soldiers was potentially lethal. We immediately began ramping up production of the more heavily armored HMMWVs and adding armor to the fielded vehicles. Our arsenals and depots have been key in our ability to respond

to this threat. With two steel mills in Ohio producing armor steel plates and the Army's arsenals and depots making kits, we expect to have all HMMWVs in country improved with better plate steel armor protection by the end of July. This response by the industrial base workforce is truly remarkable.

RFI, as mentioned previously, is another excellent example of industry's commitment to the soldier at war. In Iraq, we see the enemy evolving in its response to our efforts to maintain peace. The enemy is becoming more sophisticated in its attacks. Beginning with truck bombs and suicide bombers, we now see remotely controlled mines and well planned assaults. Industry is playing a key role here in the rapid fielding of countermeasures to keep up—and keep ahead of a very determined enemy. Because of RFI, we equip soldiers wherever and whenever necessary, providing improved force protection, mobility, situational awareness, and lethality.

Over the last 3 years, we have tripled the output of small caliber ammunition. We boosted production from 350,000 rounds per year to 1.2 billion rounds, almost all of it coming from the government-owned, contractor-operated plant in Missouri, the Lake City Army Ammunition Plant. We recently awarded contracts to Olin Corporation and to Israeli Military Industries, and we plan to expand the production capacity at Lake City. The increased consumption of ammunition, is a result of the Army's decision to better train all soldiers in marksmanship. Industry's response has once again been exceptional.

The health of the defense industrial base is key to the Army's ability to continue to provide innovative technology and technologically excellent systems and equipment. Production is primarily dependent on the privately-owned network of prime contractors and subcontractors. The Army also retains a small number of arsenals and ammunition plants.

In the future, the weapon systems and equipment that we buy must respond to the evolving threats. We, along with our industry partners, must be agile enough to anticipate requirements and expedite contracting and fielding. In addition, we must take advantage of lessons learned and adjust the entire process to correct mistakes or materiel weaknesses.

CONCLUSION

The real winner in our successful acquisition and sustainment of weapon systems and equipment is the soldier. We serve the soldier. The most technologically advanced platforms are useless without the intellect, dedication, and remarkable sense of duty of the American soldier. The soldier remains the centerpiece of our combat systems and formations and is indispensable to the Joint Team. Adaptive, confident, and competent soldiers, infused with the Army's values and warrior culture, fight wars and win the peace. Working with Congress, we will keep the Army ready to meet today's challenges and continue to make significant strides toward the fielding of our future force.

Senator SESSIONS. Thank you, Secretary Bolton.

General Casey, Vice Chief of Staff of the Army, we are so proud of your service, and that of General Schoomaker, and the vision you have and the determination you have to make our Army second to none, as it already is, and make it even better.

Secretary Bolton, thank you for your comments and your personal observations. We have a high obligation and responsibility to produce, for the people that go into harm's way, the very best. We've got to be proud of what we've accomplished in Afghanistan and Iraq, for example, in such a short period of time, but we know the enemy will adapt, and we have to continue to adapt. Your remarks were right on target.

General Casey.

STATEMENT OF GEN GEORGE W. CASEY, JR., USA, VICE CHIEF OF STAFF, UNITED STATES ARMY

General CASEY. Thank you, Mr. Chairman, Senator Lieberman, Senator Dole. I appreciate the opportunity to appear before you today to discuss the Army's transformation, which, as you rightfully put, Mr. Chairman, is really about making the best Army in

the world better and even more capable for their challenges of the latter half of the 21st century.

I would like to talk to you today about our plans to meet our current worldwide commitments while we simultaneously transform to a more agile, versatile joint and expeditionary force. But I would like to start, though, by thanking the committee for their continued support of the men and women in uniform and our great civilians, who make up the Army, and for your continued support of Army transformation.

What I will try to do here is to focus and try to give you a little context to put what Secretary Bolton talked about and what Mark will talk about here, to give you a context to put that in.

Senator Dole already mentioned the 320,000 soldiers deployed around the world in 120 countries, so we're actively engaged in meeting our Nation's operational requirements. The vast majority of these troops are in the Central Command (CENTCOM) area of operations, and engaged in combat operations. Currently, we have the equivalent of eight Army divisions either deploying to or returning from their missions. This is the largest movement of forces since the end of World War II. Couple that with the mobilization of over 150,000 combat-ready National Guard and Army Reserve soldiers, and you can see that this is really an unprecedented time in our Army's history. Today is not business as usual for your Army.

Now, with all of this operational activity, it may not seem like the best time to undertake fundamental change across the Army, but we think it is just the opposite. It is an opportunity that we can't pass up. We've looked at our commitments and have highlighted the stressors on our forces, and we've embarked on a series of near-term initiatives to do three things: first, to reduce the stressors on the force; second, to improve our capabilities; and third, as I mentioned, to transform into a more versatile, agile joint and expeditionary force in this decade. We intend to do that while remaining focused on our long-term goal of a strategically responsive, networked-capabilities-based, precision-maneuver force that is dominant across the spectrum of combat. What we're doing now, we intend to set us up for the future force that we've already talked to you about in the past.

Now, let me just talk for a moment on some of our near-term initiatives. First of all, we're balancing the capabilities between our Active and Reserve Forces. We will remove about 100,000 forces. Second, we're reorganizing our combat formations, Mr. Chairman, into modular brigade-based formations to make them more self-sufficient and to facilitate force packaging. We intend to increase the number of active brigades from 33 to 43 by fiscal year 2007, and to convert our 34 National Guard brigades to modular formations. This process has already begun down at Fort Stewart, Georgia, with the 3rd Infantry Division (ID). To do this, the President and Secretary of Defense have approved our request to grow the Army by 30,000 beyond its statutory end strength, under the authority of title 10, section 123(a). We ask for your support in doing this. Third, we're initiating a force-stabilization program that will increase unit readiness, reduce personnel turbulence, and make life more predictable for our soldiers, units, and families. Under this

program, units will form, train, and stay together for about 3 years, enhancing unit cohesion and, thereby, unit effectiveness. Soldiers will be assigned to installations for 6 to 7 years, instead of the normal three that we see now. This will improve their predictability and allow them to grow some roots in the community. So rebalancing, modularization, and force stabilization will yield an Army that has the right capability to respond rapidly and decisively to future challenges in this decade, while facilitating our transition to a future force embodied in the FCS.

We continue to work hard to balance the current and the future that you talked about, Senator Lieberman. Our short-term modernization efforts continue and are bearing fruit, as evidenced by the recent fielding and deployment to Iraq of our Stryker brigade, which went from concept on paper to combat in about 4 years, which is a great testament to your all's support over here. We have also, as Secretary Bolton mentioned, made significant improvements in our acquisition and fielding processes to get the best equipment possible in the hands of our soldiers as quickly as possible.

We'll continue to tackle the tough choices, such as cancelling the Comanche program, again, that Senator Lieberman mentioned. I would say that we need your support to use those Comanche resources to fix Army aviation.

The fiscal year 2005 budget request will enable us to provide the combatant commanders with the requisite land-power capabilities to prosecute the global war on terror, to facilitate homeland defense, and to meet our other worldwide commitments. It covers our transformation program, base operations, and 15 critical recapitalization systems. It does not address the ongoing missions in Iraq and Afghanistan nor the recovery from those missions.

Your support of this budget and the war-related costs of our ongoing operations is critical if our units are to continue their remarkable performance and be ready for future contingencies.

Thank you very much for your time. I look forward to taking your questions.

[The prepared statement of General Casey follows:]

PREPARED STATEMENT BY GEN GEORGE W. CASEY, JR., USA

INTRODUCTION

Chairman Sessions, Senator Lieberman, members of the subcommittee—I appreciate the opportunity to appear before you to discuss the Army's transformation and our plans to meet current worldwide commitments, while we simultaneously transform to a more flexible, capable, joint and expeditionary force.

I thank the members of the committee for their continued outstanding support to the men and women in uniform who make up our great Army. Your concern, resolute action, and deep commitment to America's sons and daughters are widely recognized throughout the ranks of our Service.

We are also grateful for your continued support of the Army's transformation. The goals of Army transformation are to provide relevant and ready future forces that are organized, trained, and equipped for full spectrum joint, interagency, and multinational operations. Our future force is the operational force the Army continuously seeks to become—a strategically responsive, networked, capabilities-based, precision, maneuver force that is dominant across the range of military operations envisioned for the future global security environment.

CURRENT POSTURE

With over 320,000 soldiers deployed in 120 countries worldwide, the Army remains actively engaged in support of the Nation's operational requirements. Approximately 165,000 of our soldiers are overseas on 12-month, unaccompanied tours, and the vast majority of these troops are engaged in combat operations in the U.S. Central Command Area of Operations. Currently, the equivalent of eight Army divisions is either deploying to or redeploying from our overseas missions, including Operations Iraqi Freedom and Enduring Freedom in Southwest Asia, the Stabilization Force and Kosovo Force in the Balkans, and the Multinational Force and Observers mission in the Sinai. This constitutes the largest movement of U.S. forces since World War II. Couple that with the mobilization of more than 150,000 combat-ready National Guard and Army Reserve soldiers, and you can see that this is an unprecedented moment in the Army's history.

The Army is the dominant land campaign force for our combatant commanders. Our centerpiece is the American soldier. Today, these great soldiers are performing extraordinarily well in tough combat and stability operations around the world. They understand their missions and willingly undertake their roles with pride and determination. They make a difference every day.

THE ONE ARMY CONCEPT

Side by side, the active component, Army National Guard and Army Reserve have proven that they are a combat-capable and ready team. Our Reserve components have shared a substantial portion of the Army's mission since September 11, 2001. Our successes would not have been possible without our Reserve component soldiers.

Currently, we are in the process of deploying three more enhanced Separate Brigades: the 39th Infantry Brigade from the Arkansas National Guard with the 1st Cavalry Division; the 30th Infantry Brigade from the North Carolina National Guard with the 1st Infantry Division; and the 81st Infantry Brigade from the Washington National Guard to Coalition Joint Task Force-7 (CJTF-7), and large numbers of combat support and combat service support soldiers from across the country. These units are well-equipped, well-trained, and well-prepared for their missions.

THE ARMY'S CORE COMPETENCIES

As the Army fights the global war on terrorism and remains committed to transforming, we are focused on two core competencies: (1) training and equipping soldiers and growing leaders; and (2) providing relevant and ready land power to combatant commanders as part of the Joint Team. It is clear that the Army must be an agile and capable force with a joint and expeditionary mindset. We must be versatile, strategically deployable, and prepared for decisive operations whenever and wherever required. We must be lethal and fully interoperable with other components and our allies, as well as flexible, informed, proactive, responsive, and totally integrated into the joint, interagency, and multi-national context. Our management and support processes must reflect and support these same characteristics.

MITIGATING STRATEGIC RISK THROUGH INCREASED LAND-POWER CAPABILITY

Our Nation and Army are at war. Our extensive commitments have highlighted stresses to our forces. To mitigate risk, our Army has embarked on a series of initiatives. I would like to address several of these initiatives today, because it is important to understand how the Army is transforming itself as we provide trained and ready forces to combatant commanders.

First, we are rebalancing capabilities between our active and Reserve component forces to improve our strategic flexibility. Second, we are reorganizing our combat formations into modular, brigade-based formations to make them more self-sufficient and to facilitate force packaging. Third, we are initiating a force stabilization program to increase unit readiness, reduce personnel turbulence, and make life more predictable for our soldiers, units, and families.

These efforts will yield an Army that has the right capabilities to respond rapidly and decisively to future challenges.

REBALANCING OUR ARMY

Being an Army at war provides focus and insights as we rebalance to meet the challenges of the emerging operational environment. We recognize that we must provide our Nation with full-spectrum, ground combat and support capabilities that can defeat adaptive enemies anywhere in the world.

Our challenge is not necessarily that we have too few soldiers. Instead, it stems from the fact that our formations, designed for the Cold War, must now meet the requirements of the global war on terrorism and other operations, which will persist for years to come. To meet the challenges of the future, we are rebalancing more than 100,000 spaces in our active and Reserve components—converting them to relieve the burden on the low density/high demand units, e.g., military police.

We accelerated this process after September 11, 2001, to alleviate the stress placed on our most-needed units. In compliance with Secretary of Defense's guidance to minimize involuntary mobilizations within the first 30 days of a contingency, we made further progress in 2003. We expect Army rebalancing measures to continue with the same momentum in 2005 and beyond. Our National Guard and Army Reserve have been, and will continue to be, integral to the planning and decisionmaking process for this effort.

MODULARITY

In addition to rebalancing our forces, we are creating a brigade-based, modular Army to enhance responsiveness and to increase our joint and expeditionary capabilities. Webster's defines modularity as "composed of standardized units for easy construction or flexible arrangements." Although this may seem to be an oversimplification of what the Army is doing, it is precisely our concept.

The basic maneuver element in the modular Army will be the unit of action, similar to today's brigade. Units of action will be flexible, self-contained, and capable across the entire operational spectrum.

The Army intends to increase the number of active component brigades from 33 to 43 by fiscal year 2007; at that time, we will decide whether to continue the process to achieve 48 brigades. During the same time period, Army National Guard brigades will reorganize into 34 brigade-size units using the same modular design as the active component.

The Chief of Staff has approved the initial modular design of the 3rd Infantry Division and its transformation is under way. Following rigorous training, to include rotations through our combat training centers at Fort Polk, Louisiana; and Fort Irwin, California; the division will be reset for potential deployment anywhere in the world as early as the first quarter of fiscal year 2005.

FORCE STABILIZATION

The challenges associated with current operational requirements place significant stress on our existing force structure, both active and Reserve. The approval of a temporary end strength increase affords us the opportunity to implement permanent initiatives aimed at mitigating that stress to the force.

The force stabilization initiative consists of two complementary policies: unit-focused stability and home basing. Under home basing, soldiers will remain at their initial installation for 6 to 7 years—well beyond the current 3-year average. Unit-focused stability will allow soldiers to arrive, train, and serve together for roughly 36 months, enhancing unit cohesion, training effectiveness and readiness. During the unit's operational cycle, soldiers can expect to complete an operational deployment rotation of 6 to 12 months. Overall, with force stabilization, units will have more reliable training and deployment schedules, and soldiers and families will get a greater sense of predictability.

FUTURE CAPABILITIES

Our modernization efforts continue and are bearing fruit, as evidenced by the recent fielding and deployment to Iraq of our first SBCT. Our second SBCT will become operational this spring, and the third in 2005. Three more SBCTs will be fielded through 2008.

Further, we constantly seek to achieve the right balance between the current and the future force, even when that entails making tough choices, such as canceling the Comanche program. Though it was a difficult decision, we believe it was unquestionably the right one. By reallocating funds originally intended for Comanche the Army can buy almost 800 new aircraft, upgrade or modernize an additional 1,400 aircraft—modernization for almost 70 percent of our fleet—and outfit our aircraft with the survivability equipment they need. In fiscal year 2005 alone, the Army will convert 19 Apaches to the Longbow configuration, upgrade 5 Black Hawks to the UH-60M configuration, purchase 27 new UH-60Ls; buy 4 new CH-47Fs; convert 16 existing CH-47s into F and G models; and procure 160 new, higher-power CH-47 engines. In addition, our Army will start a Lightweight Utility Helicopter program, under which we will acquire 10 new, off-the-shelf aircraft in fiscal year 2005. We need your support to use the Comanche resources to fix Army aviation.

Additionally, the Army plans to field a number of systems this decade that will provide a foundation for the transformation of our current force capabilities into those needed by our future force. Once fielded, these systems will perform as an interdependent system of systems that will significantly enhance joint warfighting capabilities. The following are some of the key transformational systems that our Army will begin to field during the next 6 years.

THE NETWORK

The situational dominance of our future force will depend upon a comprehensive, ever-present, and joint-interoperable C⁴ISR architecture that will enable the Joint Force Commander to conduct fully interdependent and network-centric warfare. This network will provide the backbone of our future force and the future Joint Force, enabling the maneuver commander to effectively coordinate battlefield effects. Some of the more important systems within the network include the following:

- Warfighter Information Network-Tactical. WIN-T will be the communications network of our future force, optimized for offensive and joint operations, while providing the combatant commander the capability to perform multiple missions simultaneously.
- Joint Tactical Radio System. JTRS is a family of common, software-defined programmable radios that will become our Army's primary tactical radio for mobile communications.
- Distributed Common Ground System-Army. DCGS-A is a single, integrated, ground-based, ISR processing systems composed of joint, common hardware, and software components. It is part of the Department of Defense DCGS family of systems.
- Aerial Common Sensor. This ISR system and platform will use robust sensor-to-shooter and reach links (such as DCGS-A ground stations) to provide commanders at every echelon the tailored, multi-sensor intelligence required for joint operations.

FUTURE COMBAT SYSTEMS

The core of our future force's maneuver unit of action is FCS, comprised of 18 manned and unmanned platforms that are centered around the soldier and integrated within a C⁴ISR network. FCS will provide our soldiers greatly enhanced situational awareness, enabling them to see first, understand first, act first, and finish decisively. Our FCS platforms will offer the Joint Force networked, lethal direct fire; indirect fire; air defense; complementary non-lethal fires and effects; and troop transport capability. In May 2003, FCS moved on schedule into the systems development and demonstration phase. Our Army is aggressively managing our FCS development effort and intends to achieve initial operational capability by the end of the decade. FCS is essential to the Army transformation.

The recent termination of the RAH-66 Comanche program was a strategic decision to fix Army aviation now and improve our future capabilities, leveraging both the technology base and the knowledge we gained from the Comanche program. We will use the savings from the Comanche program to modernize aircraft and extend aviation capabilities beyond the 2020 timeframe, acquire almost 800 new aircraft (through 2011) to build modular active and Reserve component aviation formations, and transform U.S. Army Reserve and Army National Guard aviation by replacing over 850 aging aircraft and standardizing active and Reserve component aviation systems. As importantly, we will also accelerate aircrew protection and aircraft survivability equipment fielding initiatives necessary for both ongoing and future operations.

ACCELERATED ACQUISITION AND FIELDING

We have adapted and continue to improve our acquisition and fielding processes. In 2002, as soldiers reported equipment shortages in Afghanistan and elsewhere, we implemented the RFI to ensure that all of our troops deploy with the latest available equipment. Equipment fielding schedules were revised to support unit rotation plans, and procurement and fielding cycles were radically compressed.

In coordination with field commanders and our soldiers, a list of more than 40 mission-essential items, including the Advanced Combat Helmet, close-combat optics, Global Positioning System receivers, soldier intercoms and hydration systems, were identified for rapid fielding. Laying the foundation for acquisition transformation, RFI already has equipped nine brigade combat teams (BCTs). In fiscal year 2004, RFI will upgrade a minimum of 18 BCTs and 8 enhanced separate brigades serving in Iraq and Afghanistan. Additionally, we are accelerating fielding of

select future capabilities to our current force. These items include thermal weapon sights, enhanced night vision goggles, improved body armor, the Future Combat Rifle, and a new sniper rifle. It is the strong support of Congress that enables our Army to put this improved equipment in the hands of our soldiers.

Support from Congress has also enabled our Army to institute a Rapid Equipping Force (REF) to work directly with operational commanders and find solutions to operational requirements. These solutions may be off-the-shelf or near-term developmental items that can be made available quickly. For example, the REF established a coordinated effort to supply our forces with immediate solutions to counter improvised explosive device (IED) threats. Currently, IED teams are on location providing expertise and materiel solutions to safeguard our soldiers. We are acting aggressively to improve the armor protection of our armored and light-skinned vehicles. Other examples of REF products are the Well-Cam and PackBots. The Well-Cam is a camera, attached to an ethernet cable and a laptop that enables soldiers in theater to search wells for weapons caches. PackBots are operational robots used to clear caves, building, and compounds so soldiers are not put in harm's way unnecessarily.

RFI and REF provide timely support to our relevant and ready forces and to combatant commanders, and facilitate Army transformation.

THE SOLDIER

The soldier remains the centerpiece of our combat systems and formations and is indispensable to the Joint Team. Adaptive, confident, and competent soldiers, infused with the Army's values and warrior culture, fight wars and win the peace. As a warrior, every soldier must be prepared to engage the enemy in close combat; the modern battlefield has no safe areas. Our Army trains our soldiers to that standard, without regard to their specialty or unit. Our soldiers are bright, honest, dedicated, and totally committed to the mission. The soldier—fierce, disciplined, well-trained, well-led, and well-equipped—ultimately represents and enables the capabilities our Army provides to the Joint Force and the Nation.

CONCLUSION

Our Army's commitment to the future is certain. We will continue to provide our Nation, the President, the Secretary of Defense, and the combatant commanders a unique set of core competencies and capabilities. We remain dedicated to training and equipping our soldiers and growing leaders. We will continue to deliver relevant and ready land power to the combatant commanders and the Joint Force.

Our soldiers continue to perform magnificently around the globe. Simultaneously executing the global war on terrorism, implementing our modularity and transformation initiatives, and setting the force will be a challenge. However, it is also an opportunity to reshape ourselves for the future that we cannot pass up.

Your support of this budget and for our ongoing operations, specifically in Iraq and Afghanistan, is critical if our units are to continue their remarkable performance and to be ready for future contingencies.

We appreciate your dedication to your military and to America's sons and daughters, who are serving selflessly throughout the world to make America safe and free. Thank you again for the opportunity to discuss our Army and I look forward to answering any questions you may have.

Senator SESSIONS. Thank you, General Casey.

Major General John M. Curran is Director of Futures Center, Headquarters, U.S. Army Training and Doctrine Command, and has spent some time in Alabama, for which we're grateful. We appreciate your leadership, and we're delighted to hear from you at this time.

STATEMENT OF MG JOHN M. CURRAN, USA, DIRECTOR, FUTURES CENTER, HEADQUARTERS, U.S. ARMY TRAINING AND DOCTRINE COMMAND (TRADOC)

General CURRAN. Thank you, Mr. Chairman, Senator Lieberman, Senator Dole. I'm pleased to be here to discuss how we are accelerating change in the Army and the impacts of our actions on current and future forces.

As Director of the Futures Center at the TRADOC, I welcome the opportunity to testify before you and appreciate your interest in our endeavors.

I respectfully request that my written statement also be made part of the record here today.

Senator SESSIONS. We'll certainly do that.

General CURRAN. Sir, the role of the organization I lead is to be the Army's architect of the future. Our soldiers, both today and in the future, depend on us to develop a more agile, mobile, lethal, and survivable force. We, in the Futures Center, are leading the effort to build a campaign-capable joint and expeditionary Army. The Army is accelerating changes to the current force to adapt to the existing and emerging operational environment. Simply stated, we are meeting the challenges of transforming an Army that is at war.

As the architect of the future, TRADOC's Futures Center is the nexus of Army innovation, with a great degree of influence on how the Army thinks, acts, trains, and fights. While relatively new, the Futures Center is the lead action agent to develop the future force. We enable soldiers in the current fight by determining capability gaps and, whenever feasible, integrating discrete future-force capabilities that add significantly to the current force. Many picture these spirals as materiel solutions, but our efforts span the breadth of doctrine, organizations, training, materiel, leadership and education, personnel, and facilities.

Now, we recognize that we cannot do this alone. Futures is, in fact, a team sport. Partnering with the Department of Defense (DOD), joint and interagency communities, other Services, industry, academia, our allies, and with our Army family, is critical to our success. Chief among our partners is U.S. Joint Forces Command, with whom we have built a rapport and trust that underpins really a great team, a joint team.

To fully realize the contribution of Army capabilities to the joint fight, we now work through the Joint Capabilities Integration and Development System (JCIDS), to articulate Army capability requirements instead of just focusing on systems. The Army's future force will evolve to meet joint, rather than Service-defined, capabilities.

Now, this represents a sharp break from the bottom-up, systems-focused approach we used during much of the Cold War. Army transformation is a continuous process. The goal is to spiral future force capabilities into the current force so that over time our Army continues to meet the requirements of the emerging joint operational environment.

One of the most obvious dimensions of change will be in how we organize to fight. Lessons learned from current operations highlight areas for force-design improvement. Future force organizations will be organized differently than today's formations. We will continue on our Stryker brigade path and reorganize our non-Stryker force into a modular brigade-based Army that provides combatant commanders with better alternatives in the near term and bridges to the FCS's equipped force designs.

As you probably know, the 3rd ID will roll out the first provisional heavy unit of action this month, as a standing combined-arms brigade. The division will take this redesign to the National

Training Center this spring to mature the organizational design and refine its tactics, techniques, and procedures. Army National Guard brigades will also convert to this common modular design. Both current experience and emerging operational imperatives confirm our judgement that the FCS-equipped unit of action is the organizational template capable of meeting the regional combatant commanders' requirements of the future. By accelerating the transformation of the current force towards a force with many of the characteristics of the FCS-equipped future force, we will accelerate our transformation in areas such as doctrine, training, and leader development.

FCS-equipped formations will be part of a joint team, a joint team that is decisive across the full spectrum of conflict in all types of operations, against all threat capabilities, and in all terrain and weather environments. These formations, enabled with improved situational understanding, will balance the need for strategic responsiveness and battle-space dominance, resulting in a campaign-capable joint and expeditionary force.

The human dimension is, and will remain, the most critical dimension of war. The soldier is indispensable to the joint team, the most effective, flexible, and adaptive asset we have. When we enhance the soldiers' lethality, protection, and situational awareness, we enable individual initiative and competence to win battles, wars, and the peace. The Army's transformation supports our soldiers today and will provide our Nation with a more capable future force for an uncertain future.

We are engaged in the biggest challenge an Army can face, transforming while at war. Our guideposts are clear: experiment extensively with our joint-Service counterparts, never be content with only materiel solutions, aggressively use spiral development to get elements of the future force into the hands of our soldiers on today's battlefields, and ensure our innovation results in "born joint" capabilities that contribute to successful mission accomplishment at any point on the globe across the spectrum of conflict.

We will need the full support of Congress to underpin our success, and I thank you, on behalf of our soldiers, for the support we receive.

Thank you very much.

[The prepared statement of Major General Curran follows:]

PREPARED STATEMENT BY MG JOHN M. CURRAN, USA

Senator Sessions, Senator Lieberman, and distinguished members of the subcommittee, I am pleased to be here today to discuss how we are accelerating change in the Army and the impact of our actions on current and future forces. As Director, Futures Center, U.S. Army Training and Doctrine Command, I welcome the opportunity to testify before you. I appreciate your interest in our endeavors. My intent is to assure you that our efforts support our soldiers today and will provide the Nation with a more capable force for an uncertain future.

Much has changed since this subcommittee met a year ago tomorrow to hear testimony from the Army's leadership. One year ago, we were on the brink of war with Iraq. The hearing centered on the challenges the Army faced for modernization, recapitalization and the lessons learned from the war in Afghanistan. Since the defeat of the Iraqi Army, the U.S. Army achieved Milestone B for the Future Combat Systems (FCS) program, fielded and deployed a Stryker Brigade Combat Team (SBCT), maintained a strong presence to fight the insurgency in Iraq, deployed almost every available combat formation, institutionalized transformation by establishing the Fu-

tures Center, and positioned the Army for continued transformation into a modular force.

The role of the organization I lead is to be the Army's architect of the future. We take our business very seriously. Our soldiers, both today and in the future, depend on us to develop a more agile, mobile, lethal, and survivable force. We are leading the effort to build a campaign capable, joint, and expeditionary Army. The Army is accelerating changes to the current force to adapt to the existing and emerging operational environments. Simply stated, we must transform an Army that is at war.

TRADOC is the primary point of entry into the Army's future force development. Among TRADOC's core competencies are the ability to prepare the Army for joint operations and serve as the architect of the future. We develop or capture innovative ideas and carry them through experimentation and fielding to expand the Army's capabilities. Chief among our partners is the U.S. Joint Forces Command (JFCOM), with whom we have built a rapport and trust that underpins a great team. The Army's future force will evolve to meet joint rather than Service defined capabilities.

As the architect of the future, TRADOC's Futures Center is the Army's reconnaissance force. We are continually assessing the future, and this assessment is driven by real-time guidance and direction from policy documents like the National Security Strategy and the Transformation Planning Guidance. The Futures Center is the nexus of Army innovation with a great degree of influence on how the Army thinks, acts, trains and fights. While relatively new, the Futures Center is the lead action agent to develop the future force. We have subsumed the mission and roles of the Objective Force Task Force, and we are building on the foundation of their success. We are also enabling soldiers in the current fight by determining capabilities gaps and integrating discreet future force capabilities that add significantly to the current force. Too often, we picture these spirals as materiel solutions, but our efforts span the breadth of doctrine, organizations, training, materiel, leadership and education, personnel and facilities. This is a very challenging mission, but we are uniquely postured to do the job.

At the same time, we fully recognize that we cannot do this alone—"Futures" is a team sport. Partnering with the Department of Defense, Joint and Interagency communities, other Services, industry, academia, our Allies and the Army family is critical to our success.

To fully realize the contribution of Army capabilities to the joint fight, we now work through the Joint Capabilities Integration and Development System (JCIDS) to articulate Army capability requirements. JCIDS is the top-down process involving functionally-focused teams centered on developing required capabilities and effects rather than systems. The process involves regional and functional combatant commanders early on in the development process to ensure their requirements for combat and combat support forces are being realized. It represents a sharp break from the bottom-up, systems-focused approach used during much of the Cold War.

TRADOC executes the JCIDS process by analyzing Army warfighting concepts derived from strategic guidance, the Joint Operations Concept and subordinate joint operating, functional and integrating concepts. These concepts describe how the future force will operate, the conditions and environment in which it must operate, its required capabilities in terms of missions and effects, and its defining physical and operational characteristics. We analyze these required capabilities to isolate the tasks, conditions and standards that the force must perform. We assess these tasks to determine gaps in capability that pose sufficient operational risk to constitute a capability need requiring a solution.

We then perform an operationally based assessment of potential doctrine, organization, training, leadership and education, personnel, and facilities (non-materiel) or materiel approaches to solving or mitigating one or more of the capability needs we've identified. Non-materiel changes, product improvements to existing materiel or facilities, joint or other Service's capabilities or adoption of interagency or international solutions that solve or mitigate the capability need are recommended to Army senior leadership. Only when these solutions do not solve the capability need will TRADOC recommend a new materiel start and continue the JCIDS process into the Defense Acquisition System.

The Army as a Service and a joint partner is an integral participant on committees and boards that manage the JCIDS process. More importantly, we see these groups as critical entry points in the process where Army programs are validated as we attempt to spiral improvements into the current and future force. As we interact with the joint community and our sister Services, our focus is to bring issues, potential programs and concepts to the Joint Requirements Oversight Council (JROC) as soon as possible to determine how they provide new warfighting capability. The scope of analysis of shortfalls does not simply look at the materiel side of

the equation—the hardware of weapon systems. This is “old think,” a past practice that no longer works within JCIDS.

We look at all Services’ doctrine, organization, training, materiel, leadership and education, personnel and facilities (DOTMLPF) alternatives for solutions. Further, the JCIDS process provides the analytical foundation that allows members to understand the realities for advancing a new program or deciding to change some other element of the DOTMLPF equation to address the shortfall. We are institutionalizing the new JCIDS process into Army thinking—it is no longer a bureaucratic hurdle, it is the way that partners engage in bringing value to the whole team.

To accelerate change and rapidly integrate future force capabilities into the current force, TRADOC leads the Army’s concept development and experimentation effort; focused on four areas:

- Developing coherently joint Army operational concepts and capabilities,
- Testing prototype capabilities,
- Providing actionable recommendations to inform DOTMLPF decisions,
- and
- Integrating a broad community of practice.

Transformation has no endstate—it is a continual process. We will have intermediate objectives along the transformation path, but we will not reach a point where we declare that we have in fact fielded the future force. The goal is to continually strive to spiral mature capabilities into the current force so that over time our Army more closely resembles the vision of the future force. We aggressively use live, virtual and constructive experimentation. Out of these experiments, we derive actionable recommendations to reduce future force development risk. Aggressive prototyping and testing satisfies current and future force operational needs by deploying compelling technology today.

The Army is currently exploring five prototype areas:

- SBCT—a focus on further SBCT and unit of action (UA) development.
- Air Assault Expeditionary Force—a focus on networked lethality at the small unit level.
- Unit of Employment—a focus on incrementally fielded unit of employment (echelon above brigade) capabilities and integration with emerging USJFCOM prototypes like the Standing Joint Force Headquarters (SJFHQ).
- Modular Force Redesign—a focus on unit organizations to increase agility and effectiveness.
- Squad Redesign—a focus on squad organizations to increase lethality and maneuverability

Institutionally, we have adapted our structures to build a broad community of practice with a series of fora that harness the widest range of intellectual capital. In 2003, for the first time the Army and JFCOM entered into a partnership and co-sponsored Unified Quest (UQ03), the Army’s premiere transformational wargame. This joint wargame explored not only Army concepts, but joint and inter-Service concepts in a future force whose capabilities must be “born joint”. This leap in transforming our military through application of spiral concept development also creates an environment where both JFCOM and TRADOC can examine several unique embedded experiments that are specific to each organization. Following in the footsteps of UQ03, this year’s wargame, UQ04, will set a new precedent-breaking path by extending the exercise play from that of UQ03. Game organizations will examine scenarios that involve major combat operations, stability operations, transition to post-conflict and network-centric command structure in the year 2015.

We are also engaged with our sister Services in their wargames like the Navy’s Unified Course 04, the Air Force’s Unified Engagement VII, and the Marine Corps’ Joint Urban Warrior. We complement this work with insights gained from our Army battle labs, which span the range of capabilities from air and missile defense to special operations. Forces that participate in developmental and readiness exercises augment our judgments by providing field perspectives as they go through after action reviews once the exercises are complete.

Going beyond wargaming, the Army and other Services are beginning to enhance joint interdependence through enhanced joint training exercises. JFCOM’s Joint National Training Capability (JNTC) exercise trains America’s Joint Force. The JNTC links Service training facilities and ranges into a real-time, joint training environment around the world effectively bridging communications to apply the full range of multi-level joint capabilities into joint exercises. These exercises bring to bear the mutual supporting relationships of the Services and allow exploration of the seams and gaps existing today in operational settings.

This wealth of knowledge gained through all of the examples I've discussed has challenged us to make adjustments to ensure we capitalize on what we learn. We have quarterly executive level reviews to examine progress to date and make adjustments to the way ahead. We have monthly meetings at the joint level on broad concept development and experimentation issues which guide joint work at all levels. There is a constant exchange of information in face-to-face meetings at all levels that is robustly augmented by a high level of online collaboration. This continuous process of collaboration and interaction forms the architecture for transformation efforts.

We work hard at analyzing the gaps between future capabilities called for by the Joint Operations Concept and efforts underway in our prototyping and concept development programs today. We incorporate an Intelligence Community evaluation of potential future enemies and future challenges. We constantly review operational lessons learned like the Army's and JFCOM's Operation Iraqi Freedom "Quick Looks," individual unit lessons learned, and combatant commander assessments. We support this work by a robust analytical process that assimilates innovative practices—including best commercial practices, collaborative environments, modeling, simulation, and electronic business solutions.

We couple the analysis with Army-wide judgments to create a holistic snapshot of where we need change.

Our snapshot of capabilities gaps for the current force is exactly what it implies—today's best judgment of shortfalls to guide our prototyping, experimentation, and concept development. The snapshot will change as our enemy adapts his operational methods to engage us in asymmetric ways and we gain experience in how to continue to achieve our mission in spite of those new tactics. We are looking at numerous areas including providing:

- Improved soldier protection in counterinsurgency environments
- Prototype network-enabled battle command
- Responsive, networked, precision fires
- Protecting the force in noncontiguous battlespace operations
- Improved nonlethal capabilities
- Improved Joint Urban Operations
- Expanded human intelligence (HUMINT) capabilities
- Increased ability and speed of analysis and information dissemination
- Increased ability to sustain a high operational tempo
- Improved Special Operation Forces and conventional forces integration
- Improve joint intra- and inter-theater lift

These examples of capabilities gaps inform both our concept development and prototyping efforts, which are simultaneous, parallel, and supporting. The plans we develop must be completely nested in what JFCOM is doing. This comprehensive task capitalizes on the broad Army community of practice from our battle labs, operational units, research labs, and materiel developers. The end product will resemble what those who coined the term "Joint Interdependence" envisioned—an understanding of the differing strengths and limitations of each Service's capabilities, clear agreement about how those capabilities will be committed in a given operational setting, and absolute trust that, once committed, they will be employed as agreed. The outcome is a Joint Force significantly stronger than the sum of its individual parts, one that will always be successful in fighting the Nation's wars when called upon.

At the heart of the Army's vision of the future force are new operational concepts. These concepts are inherently joint, but will nonetheless have tremendous impact on every dimension of our Army. One of the most obvious dimensions of change will be in how we organize to fight. At the same time, our current operations illustrate many opportunities for force design improvements. Reorganizing our force now provides combatant commanders with better alternatives in the near term. Further, we believe that accelerating several changes envisioned for the future force into the current force, centered on modularized brigade combat teams, is the way ahead to maintain the high benchmark of success demanded of us, both in the near term and in the future.

What led us to conclude that brigade, division, and corps structures, so successful for so many combat operations, must change? We've learned in the harsh combat conditions of Afghanistan and Iraq that change is both essential and possible for us to improve as a robust member of the U.S. joint warfighting team. There are now opportunities for a new level of joint interdependence that can weave major land, sea and air operations into a coherent joint fabric and push "jointness" down to the lowest possible tactical levels. To engage enemies that employ varying operational techniques, the regional combatant commanders require ground forces that are scal-

able, available early in a campaign and complementary to other joint capabilities. The elements of time, geography, and the disposition of our adversaries require operations that are nonlinear, noncontiguous and less hierarchical. We must employ improvements in weapons and techniques across all warfighting dimensions to make engagements more precise and lethal. These challenges, however, require more than just materiel solutions—we need new formations.

The Army is deploying evolutionary organizations on the battlefields I've just described. We have a Stryker Combat Brigade Team deployed in Iraq providing daily insights into adjustments we can make in our future force redesign efforts. The 3rd Infantry Division (ID) will roll out the first provisional heavy UA this month as a standing combined arms brigade. The division will take this redesign to the National Training Center this spring to mature the organizational design and refine its tactics, techniques, and procedures. The 3rd ID will create three more heavy UAs by July 2004. The Army will begin building the first two Infantry UAs in the fall beginning with the 10th Mountain Division and the 101st Airborne Division. All active component divisions will tentatively complete conversion by fiscal year 2007. Army National Guard (ARNG) brigades will also convert to these common modular designs; the ARNG and Army staff are working on the sequence to do this as quickly as possible. This will enable the Army to rapidly tailor forces to meet the combatant commanders' requirements, and employ flexible, smaller formations distributed across an extended battlespace.

Both our current experience and emerging operational imperatives confirm our judgment that the FCS-equipped UA is the organizational template capable of meeting the regional combatant commander's requirements of the future. By accelerating the transformation of the current force toward a force with many of the characteristics of the FCS-equipped future force, we will accelerate our transformation in areas such as doctrine, training, and leader development. Such a force will be agile, lethal, networked, precise, rapidly deployable, modular and born joint. The modular Army we are building today is the bridge to the FCS-equipped unit of action.

FCSs are comprised of a family of advanced, networked air- and ground-based maneuver, maneuver support, and sustainment systems that will include manned and unmanned platforms. FCSs are networked via a command, control, communications, computers, intelligence, surveillance and reconnaissance (C⁴ISR) architecture, including networked communications, network operations, sensors, battle command systems, training and both manned and unmanned reconnaissance and surveillance capabilities that will enable improved situational understanding and operations at a level of synchronization heretofore unachievable.

FCSs will operate as a system of systems that will network existing systems, systems already under development, and new systems to be developed to meet the needs of the FCS-equipped UA. The network will enable improved intelligence, surveillance, and reconnaissance (ISR), enhanced analytical tools, joint exchange of blue and red force tracking down to the tactical level, battle command, real time sensor-shooter linkages, and increased synergy between echelons and within small units. It will also enable the UA to connect to unit of employment, joint capabilities, and national assets making these capabilities available to the small units of the UA. FCSs will enable the networked maneuver UA to develop the situation in and out of contact, set conditions, maneuver to positions of advantage, and to close with and destroy the enemy through standoff attack and combat assault as articulated in the UA operational and organizational plan.

The FCS-equipped maneuver UA is not just a unique Brigade Combat Team, built around a family of systems, but a new concept for fighting those systems. This formation will be part of a joint team that is decisive across the spectrum of conflict, in all types of operations, against the complexity of threat capabilities, in a variety of terrain and weather environments. The UA balances the capabilities for strategic responsiveness and battlespace dominance, resulting in an expeditionary force with campaign qualities. It can perform tactical and operational maneuver by land, air, and sea. The UA can be tailored with additional capabilities for specific missions during a campaign. It employs its revolutionary C⁴ISR architecture to expand or contract its span of control and integrate unit of employment (the next higher Army echelon) or Joint Task Force supporting capabilities to accomplish missions. Its significantly improved ability to collect and process information using organic and external joint and Army supporting sensors and sources ensure that commanders will possess the timely, accurate intelligence necessary to achieve decision superiority. The UA improves the ability of soldiers and leaders to achieve lethality and survivability overmatch. Like our current forces, the foundational centerpiece of the formation remains soldiers and leaders, enabled by technology, within mounted and dismounted small unit fighting teams.

As the Army's "Architect of the Future," the Futures Center will continue to provide a warfighter perspective to the integration of DOTMLPF actions to enable the Army to achieve FCS-equipped future force capabilities by the end of this decade. We collaborate with the FCS Program Manager (PM) and the Lead Systems Integrator (LSI) to ensure simultaneous and parallel future force, UA, and FCS developments are properly synchronized and integrated to meet the user's requirements.

The FCS program requires a continuous and consistent refinement of requirements. The JROC approved the FCS Operational Requirements Document in April 2003. At that time, the JROC approved seven Key Performance Parameters (KPPs), which were then included in the Acquisition Program Baseline: Joint Interoperability (which we will convert to the new Net Ready KPP standards), Networked Battle Command, Networked Lethality, Transportability, Sustainability/Reliability, Training, and Survivability. We are currently completing our analysis of these KPPs to add and refine metrics; the refined KPPs will go back to the JROC by September 2004 to support a Milestone B review with the Office of the Secretary of Defense (OSD) in November this year.

Since entry into System Development and Demonstration (SDD) phase, TRADOC has worked collaboratively in a "One Team" structure with PM FCS and the LSI to develop and refine the program threshold and objective system of systems specifications, which represent the requirements baseline for the program. We are currently working with our partners to complete design trade studies, which will support selected design decisions this spring.

This effort demands an unprecedented level of sustained TRADOC involvement by its best experts at the Futures Center and the Army's institutional schoolhouses. TRADOC is committed to providing user support to the program that is characterized by innovation, forwarding thinking, collaboration, cooperation, and team play. This support is distributed across the command, but integrated using the Unit of Action Maneuver Battle Lab (UAMBL), the TRADOC System Manager (TSM) for FCS, and the Futures Center. We are also assigning TRADOC user personnel to collocate with PM FCS and some LSI and subcontractor facilities involved in FCS developments to ensure rapid user feedback on design issues as they arise during SDD. TRADOC is also committed to supporting the One Team in the day-to-day management of SDD. TRADOC has designated subject matter experts from throughout the command to serve on each of fourteen Integrated Product Teams (IPT). TRADOC also provides colonels and general officers to serve on program change control boards, giving us real time visibility and participation in resolving issues affecting cost, schedule, and performance. The Futures Center and UAMBL are partners with the PM and LSI in major program reviews; we also support the OSD IPTs which prepare the Army for OSD-level reviews. We fully support our program partners in focusing FCS development at the system of systems level, with front-end prioritization of architectures, engineering, and integration. We believe this revolutionary acquisition process is key to achieving future force capabilities.

TRADOC has networked its battle labs to conduct extensive experimentation during the SDD phase to provide real time user feedback to the FCS program as the family of systems are designed and developed. The Futures Center is strengthening its collaboration with Joint Forces Command to ensure joint integration. It is also strengthening TRADOC's links to the Marine Corps Combat Developments Center to ensure that Army and Marine Corps FCS common requirements are synchronized when the FCS program transitions to become a Joint Program Office.

While experimentation, analysis, studies, and technology inform us about what the future force will use to fight the next war effectively, it is the individual soldier who is the centerpiece of our focus. War is a test of wills; the human dimension is its most crucial dimension. The soldier is indispensable to the joint team—the most effective, flexible, and adaptive asset we have. Our philosophy of equipping the soldier instead of manning the equipment is enduring. When we enhance the soldier's lethality, protection and situational awareness, we enable individual initiative and competence at the point in which battles, wars, and the peace are won.

In summary, we're taking on the biggest challenge an Army can face: transforming while at war. We must rapidly adapt to a future we did not perfectly anticipate and we must do this with forces deployed globally. Our guideposts are clear—experiment widely with our joint and Service counterparts, never be content with only materiel solutions, aggressively use spiral development to get elements of the future force into the hands of the soldier on today's battlefields and ensure our innovation results in "born joint" capabilities that contribute to successful mission accomplishment at any point on the globe across the spectrum of conflict. The window of opportunity to do this is finite; we must not tire in our efforts. We will need the full support of Congress to underpin our success. The Army's transformation supports our

soldiers today and will provide our Nation with a more capable future force for an uncertain future.

Thank you.

Senator SESSIONS. Thank you very much. Those were good statements. We appreciate them very much.

Secretary Bolton, on the basic question of what you need, you've indicated, in your statement—which I appreciate very much, it is a thorough analysis of where we are and where we need to go. You might summarize for us what are some of the items that will be in this new force, like the unmanned aerial vehicles (UAVs) and things of that nature. How are we coming along with those? Are we falling behind as a result of a shortfall in resources? What would it take to keep us on track?

Mr. BOLTON. Let me answer the last question first. We're not falling behind. We went through a major milestone review last May, the 14th of May, right on time.

Let me just give you an idea how important that is. The process or the system—and I'll describe that here shortly—is the most complex undertaking, in terms of the program, the DOD has ever done. This rivals what we did in the 1960s as a country for the space program. It rivals what we did in the 1940s with the Manhattan Project.

We have a system of systems called the FCS. This system of systems has in it unmanned vehicles, so it can relieve the pressure on the soldier by offloading things that we would normally put on his back, and put that onto a mobile robot. That robot can also have arms on it, so we can fire mortars and so forth. It will have a cannon, non-line-of-sight (NLOS) cannon. It will have airborne assets, unmanned. It will have, most importantly, something that we are just now seeing in the Stryker brigades that we saw with the 3rd ID; we called it Blue Force Tracking, the ability to network all of these sensors, all of these vehicles together, so that the soldier, for the first time, has the ability to know where the enemy is, to see what that enemy is doing, to act against that enemy, and to defeat that enemy.

Why is this necessary? The combatant commanders, formerly the commanders in chief, have a basic requirement of the land force, the Army, and that's to be able to move a brigade-worth of combat capability anywhere in the world in 96 hours; a division, anywhere in the world in 120 hours; and then half, or five of our active divisions, in 30 days.

Now, I've told folks, we don't have to do this FCS; we can meet those requirements of the combatant commanders today. But here's some provisos. First, you need to tell me where we're going to be fighting 5 years from today. Two——

Senator SESSIONS. We'll have to ask Senator Lieberman precisely where that will be. I'm not capable. [Laughter.]

Senator LIEBERMAN. Can you give me a few moments? [Laughter.]

Mr. BOLTON. Second, I need to preposition. Third, I need all of the airlift and all of the sealift. Then I might be able to hit those prerequisites of the combatant commanders. The truth is, that's not going to happen. So we're going to have to get lighter, which is what the FCS is. Any vehicle is sized to fit inside a C-130 box.

That doesn't mean we're going to transport it in C-130s all the time, but it does force us, in the design phase, to make capability that is smaller, lighter, so we can transport it faster to meet the combatant commanders' requirements. If you're lighter, you don't have all the armor.

Now, my armor colleagues cringe a little bit when I tell them, "We're going to put you in 20-ton, not 70-ton, vehicles." Not a lot of armor there. They're used to that. I have to prove to them, over the next 5½ years, you're survivable, as well as capable, on the battlefield. How do you do that? I'm going to tell you where the enemy is, and you're going to be able to act and put a rock, an armament, on his head before he can react to you. We see that today in the Stryker brigade. We see that as the 3rd ID went across the berm, and they could see where they were, the blue force, and, as our intelligence improved, where the bad guys were. So we have 18 of these systems in this FCS—unmanned vehicles, airborne- and ground-based, armored vehicles, infantry carriers, reconnaissance vehicles—18 different systems, plus this network wrapped around the soldier.

Now, in this phase—and we started this system design development phase on May 14 last year—we will spend just under \$15 billion to do all of this. We are on track today. We will have a preliminary design review about this time next year. We have demonstrated the basics of the network, which is the heart and soul of this. If I don't have this, I will not be able to survive on the battlefield. We've demonstrated the NLOS cannon. Here, last year—and there were some doubters—can you take a large gun, a 155 Howitzer, and shoot it from a platform that's only 20 tons? There were a lot of folks that said, "You can't do that." But we already demonstrated that. We delivered that vehicle, the demonstrator, to Yuma in August 2003. We shot 240 rounds-plus out of it. We have moved the vehicle, and it has a band track on it right now. But it may be tracked, it may be wheeled; we'll figure that out over the next 18 months—75-kilometers. Firing rate, we had a goal of six rounds per minute. We're just over that now. As a demonstration, it works fine. Now we need to go on to the next phase for the NLOS cannon, and there's a lot of work to do there. I know there will be questions on that. But we're on track to make that happen. The senior leadership of the Army—that includes the Secretary, the Chief, myself, and the Vice—have all said that has our top priority, because that is the future.

To give you another idea, in closing, some folks assume that this is a vehicle. It's a wheeled vehicle, it's a track vehicle, it's an aircraft, it's a gun, it's all of that. While we won't change the Army overnight, that is not going to happen in 2010, when we have our initial operational capability, or in 2012, when we have the full operational capability, which is basically a brigade size; it will happen maybe 10 to 15 years from now as we slowly replace the entire Army with the FCS. We are talking about changing an entire Army.

As General Curran aptly put it earlier, this is not just materiel solution. We are changing what we do in doctrine, we are changing how we organize, we are changing how we train people—how we lead them, and, of course, we are changing materiel to allow the

soldier the ability to see where the enemy is, to act on that enemy, and to defeat the enemy before the enemy ever realizes it.

I hope that sums it up.

Senator SESSIONS. Well, that's well said, and I just wanted to say that what I like about what you're doing. The attitude I sense in the Army is that we can do better, and we're going to do better; but the fact is, we've demonstrated, in every conflict in recent years, that our capabilities—command and control, training, motivation—exceed that of any military in the world, and we can be proud of that.

Senator Clinton, we're glad that you've joined us, and we'll call on you in a minute. We'll go next to Senator Lieberman.

Senator LIEBERMAN. Thanks, Mr. Chairman. Thanks to the three of you for your excellent testimony.

Let me begin with some questions about the restructuring and the addition of the brigades. I understand the Army restructure is to create a modular brigade-based Army that is more responsive to combatant commanders' needs. I want to ask you—and maybe we can start, General Casey and General Curran, however you want to do it—How will this change the operational capability the Army provides to the combatant commanders, number one? What's the impact of this transformation to modularity on future requirements?

General CASEY. Why don't I start this off, and then I'll pass it over to Mark, there, Senator.

The impact this will have on the forces and how we provide forces to combatant commanders, as we mentioned, we are focused on transforming ourself into a joint and expeditionary Army that still maintains its campaign capabilities. By that, we're not trying to be like the Marine Corps. We're joint, and we're expeditionary. We want to be able to get there quickly. But then when we get there, we, the Army, bring to the combatant commander the ability to conduct sustained land operations, battle after battle after battle, to help him accomplish his objectives.

These modular organizations will, one, allow us to tailor force packages more rapidly. For example, we believe that these now divisional headquarters that we have with three brigades—when we deploy one brigade, we have to break up the division. So we have the brigade doing a mission, but now the rest of the division is not as capable. General Schoomaker likes to talk about it as his window-washer. The windowwasher on the skyscraper has a squeegee that's about this long, and he does a very nice job on this. But then when he gets the job to do window panes, his squeegee doesn't quite fit in the panes, so he's got to either break his squeegee or take a rag out of his pocket; so they have to improvise. These modular brigades are how we fight. They will be organized so that they have all of the capabilities they need to be self-sufficient so they can operate for combatant commander independently and plug right into a joint task force, or they can work as part of one of our divisions that is also supporting a combatant commander. We think it will give the combatant commander much more agile forces and much more versatile forces.

I'll pass it over to Mark to see if he wants to add anything.

General CURRAN. Thank you, sir.

When you dive down into the modular brigade design, you find some additional capabilities that you wouldn't find in our BCTs today. First of all, these organizations are designed combined-arms, organic. The artillery, the armor, and the infantry are all combined as part of the brigade, and they are organic to the brigade. With our stabilization efforts and our growth patterns we have for our new brigades, these members of this new modular brigade will stay together longer, so team cohesion will be a significant advantage.

Third, these brigades have a much more robust staff. Now, what does that do for the combatant commander? Well, it provides a combatant commander with a combined-arms formation that can operate independently longer because it has the staff capabilities to do it. It doesn't have to rely as often on a higher echelon or higher command for the staffing functions. It also will have the ability to reach back to sanctuary or to home station, or to a home-station operation center to be able to use the staff that is there that doesn't have to be deployed into theater to provide it with the reach-back capabilities or staffing functions.

Probably the most significant is the improvements in reconnaissance-surveillance that is nested within the brigade. Within these brigades, there is a reconnaissance-surveillance squadron or battalion ground reconnaissance, military census, collections capability, tactical UAVs, small UAVs, that provide much better situational awareness to this brigade. It provides its own organic—if you compared it to a brigade combat team today, you would find that they only have a company or a platoon's worth of scouts or reconnaissance. So we really beefed up the reconnaissance, but we haven't increased the number of killing systems within the brigades to any large extent. The lethality of these brigades is actually going to be increased because of the ability to find and fix the enemy with this increased reconnaissance capability, plus the ability to leverage joint fires—much more capable at leveraging joint fires because of the more liaison that is built within the staff with the Air Force to provide lethal fires. Finally, there's more infantry in it than you will find in the heavy infantry brigade.

Here we've created a modular brigade that is going to be more capable for the combatant commander and doesn't require as many plugs or as much support from a higher echelon as you would find in our brigades today.

Now, how does that relate to the future?

Senator LIEBERMAN. The size will be the normal size of a brigade?

General CURRAN. Sir, the size of the modular brigades runs around 3,700 for the heavy brigade; about 3,000 for the infantry brigade or light brigade. That is compared to today's BCTs, depending upon how they're task-organized, what kind of plugs they get from other areas, and could be as high as 4,000 or perhaps a little bit higher.

As we look to the future now, and to the FCS-equipped unit of action brigade, it's sized at about 2,900 or a little less, but it's equipped with a FCS that Secretary Bolton spoke about.

Senator LIEBERMAN. So it's smaller because it's better equipped and it's more productive, in a sense.

General CURRAN. Sir, it is more networked. It has greater information capabilities to be able to provide situational understanding to that force than what you would have today. Now, we are in the modular design, applying as much as network capability as we can, given just existing capabilities. But when you move to the future, it's going to be even greater. But the real issue about modularity today, these brigades we are creating, is that they act as a bridge to the future design and construct. They are more like the FCS-equipped unit of action than what you would find in today's brigades. As we move to the end of the decade and we start to bring on the FCS-equipped unit of action into the next decade, we will have organizations that are already designed more similar to the organizations that they will be fighting in the FCS. This will pay us big dividends in doctrine, organization, and leader development. We will have soldiers who have already been operating in brigade organizations that are similar to what they will go to in the FCS. They will have already started to work with network-enabled capabilities and a greater reconnaissance capability, with UAVs leveraging joint fires, joint information, surveillance, and reconnaissance.

Senator LIEBERMAN. Thanks, General.

Let me ask one more question—I don't want to take too much time—and give Mr. Secretary or General Casey an opportunity to respond to my broader concern about the resource constraints and how we help you meet both the demands of the current situation for the current force, and not do so in a way that compromises the future force. Just as in recent years I've been concerned that we may have been taking risks in the short term to make bigger investments in the longer term. Now I'm worried that—again, because we were at war—we're investing in a kind of modernization or fixing of the current force. It's going to cost us so much that we're not going to be able to invest in the transformation, that I think we all support, to the future force.

Mr. BOLTON. Let me give you a general answer to that to illustrate how we're doing this already and have been doing it for at least 18 months. When our new chief came aboard, he asked that we take a look at technologies ready today. He did not want to wait for the FCS. He fully supports that and will start working with that in 2010. But if there's technology today, put it in the force today.

Starting in Afghanistan, I sent a colonel to Afghanistan, one of my folks, a Ph.D. from the Massachusetts Institute of Technology, and said, "Your job is to be with the soldier. You know the technology we have that is ready today. Find out what they need today."

One of the first things we did over there is put robots in caves. We wanted to see whether or not there were weapons down in those wells, and we found some. Some of the Afghani citizens were not happy when we came in to search houses. The doors were locked; we blew the locks off, we searched the house, and now the lock is broken. They're not wealthy people, and so how do you replace the lock? In a short period of time, we found ways of opening those locks without breaking them, doing the search. Coming out with that particular activity has resulted in getting, in as little as

72 hours to as long as 90 days, current technology in the hands of the combatants today.

Along with that, I turned to the chief, and I said, "We need to build for you the spiral." You're talking about you want to spiral current technology into the future force, but the 90 days out to a year, and so we're starting to do that.

We have a person who works for me, a one-star; his job is to take a look at the soldier and find out what the soldier needs. I mentioned some of this in my opening statement. We call it the Rapid Fielding Initiative (RFI). Each soldier now is getting the elbow pads, the knee pads, better night-vision goggles, translators, and a few other things—a new helmet, so that when you drop down to shoot the rifle, you can actually see what you're doing. Others say, "Well, gee, why haven't we done this before?" He has about 300 different projects that we put under him that were managed—my words now—on an ad-hoc, unfocused fashion. Now they are focused.

But that, back to your point, is changing our current force to the future force. We watch it very closely. We manage the money that goes into that very closely. Last year, we outfitted 27,000 soldiers. This year, it's 120,000, and we'll keep that going until we outfit everyone. It is a constant balance between what do I need for the future, what do I need for today, and the resources available. That is why, since I've been in this position, now going into the third year, we have terminated some 30 programs. We've done that well, based upon the feedback I've gotten from Congress, industry, and the Army. That's to put funds where we need it for the current force, as well as the future force.

Senator LIEBERMAN. Thank you.

General, did you want to add?

General CASEY. To get to your broader question, Senator.

Senator LIEBERMAN. Go ahead.

General CASEY. You're exactly right. I mentioned in my opening statement that we're constantly balancing the current and the future. Clearly, the pendulum has swung, as you indicated, from the future more back toward the current. However, we are going into this up front with an assumption in our mind that we must maintain program stability for the FCS because that is our future. So that is one of our base planning assumptions. Right now, in this budget, we are sticking with that and we intend to stick with it because, as you pointed out, it is our future. If we give up on that, we might have a more modernized current force, but it's not the force we're going to need in the future.

Senator LIEBERMAN. Thank you very much. Again, we look forward to working with you. We have seen extraordinary demonstrations of American power used in protection of our freedom and in pursuit of our national values over the last dozen years. Sometimes some people in the world resent us for our strength, but ultimately people depend on us, and it's all that you do. So we thank you for it, and look forward to helping you continue to do it in a way that is really unprecedented in human history, and bless you for that.

Thank you.

General CASEY. Thank you, sir.

Senator SESSIONS. Senator Dole.

Senator DOLE. Thank you, Mr. Chairman.

Gentlemen, the Army National Guard and Army Reserve are now recognized as essential elements contributing to the Army's success. In support of the Army's transformation, General Blum has highlighted the National Guard's plan to transform in step with the active component. However, the 5th Battalion, 113th Field Artillery, of the North Carolina National Guard is among 22 other artillery battalions that will not be upgraded with the high-mobility artillery rocket system until after 2012. General Casey, to what extent does the Future Years Defense Program (FYDP) support a simultaneous transformation of the National Guard and active component?

If I could mention one other question, as well, for you to respond to: Will National Guard units and the active component field the FCS concurrently? If not, will there be a lack of modularity between the Active and Reserve Forces until all components have transformed?

General CASEY. Thank you, Senator.

As we look at the Guard and Reserve, and what both Steve Blum and Ron Helmley have done, they've developed very aggressive plans to transform both the Guard and Reserve. One of the overriding considerations is that we will work toward modular formations in both the Guard and the Reserve so that we will be able to plug-and-play Guard under active, active under Guard. You're going to see some of that in Operation Iraqi Freedom (OIF) when we have the National Guard divisions that will have active-component brigades underneath it.

We are, right now, working with the Guard and the Reserve on the equipping of these forces, and we are doing that as part of the program we're building for 2006 to 2011. We're not finished on that.

I will tell you that we won't be able to give everybody all of the best equipment. That is just a given. There's just not enough new equipment to go around, and we can't afford it all. But I think you know there are—our 6th Stryker brigade is going into the National Guard in Pennsylvania. To the best of my knowledge—and you can help me with this—we have not made decisions on the FCSs, and when and which unit, Guard units, that will go into.

General CURRAN. Sir, that's correct. We haven't made decisions on the active units yet.

General CASEY. We're just not that far along. But one of our basic premises is modular formations—active, Guard, Reserve—the same.

Senator DOLE. The Army's transformation plan incorporates a significant restructuring and rebalancing of the force. This appears to be a complex multidimensional realignment of forces and capabilities between the Service components, military occupational specialties, and the civilian workforce. Has the Army finalized a plan for rebalancing capabilities between the active and Reserve? I think you've just addressed parts of this.

Does the FYDP provide the resources to equip, train, and organize the Reserve component forces affected by the rebalancing plan? When can we expect to see the details of the Reserve components restructuring plan?

General CASEY. We're probably 90 days or so away from having the final details of that, but we will complete that as part of our work on this program. It needs to be locked by about the July time frame, so, as I said, about 90 days. We will come up and lay out for everyone the impact on the Guard units and Reserve units in each of the States.

Senator DOLE. The Heritage Foundation recently published a study by Dr. Carafano that stated, "breaking the division down into smaller independent commands will likely require more support troops than are in the current division design." General Casey, could you give us your assessment of how the modular design, based on units of action, will affect the overall support structure within the Army? How will the transformation of the support structure alleviate some of the logistics shortfalls experienced in OIF?

General CASEY. Okay, I'll take that, and I'll pass it off to Mark here for a second. Clearly, we had some economies of scale when we kept what we called the enabling forces—the logistics, the signal, the artillery, the engineers—at division level. Under modularity, those are all pushed down into the brigades. Keeping at the division level allowed the division commander to what we call "weight," to give additional resources to his main effort, for example. So at the brigade level, we will probably see small increases in the numbers of support forces that are required to fill up those brigades; however, we believe, when we look at our logistical system, that we think we can get it down to the three-echelon logistics system, rather than a four- or five-level system that we have now. The brigade will be the tactical level. They will be self-sufficient, as I mentioned earlier.

The next level will be at probably what we call the corps level that will link into the theater level and into the tactical level with the brigades. We think that theater level has got to be a joint theater level because you don't see a requirement for an Army theater of war anymore. It will be a joint theater of war. We think there are going to be some efficiencies in our logistical formations once we're able to work with the other Services and come to an agreement on what this joint logistical footprint looks like in the theater.

Senator DOLE. Thank you very much, Mr. Chairman. Thank you, gentlemen, for the tremendous job you're doing carrying on these many functions simultaneously.

General CASEY. Did you have something you wanted to add?

General CURRAN. I was just going to add, because General Casey hit really the high points, that we have a task-force-focused logistics. It's one of our Army task forces that the chief has initiated, and they are delving into the improvements we can make from the lessons learned from OIF, from what we're doing in modularity to improve our logistics focus leading to higher-echelon, joint-logistics capabilities. That's what we would like to see. Additionally, one of the things we learned from OIF is that in order to provide the logistics at the speed at which you have, you have to enable the logisticians with information systems that permits them to do their job. We are working that very hard, too, to bring that capability as a part of this modular effort.

Senator DOLE. Thanks very much.

Senator SESSIONS. Senator Clinton. If you would like to make an opening statement, please do.

Senator CLINTON. No, that's fine, Mr. Chairman, thank you. I don't have enough voice to make both an opening statement and ask questions.

I wanted to pick up where Senator Dole was leading because she has articulated very well some of the questions that I have. Maybe we could put it into more of a practical example, which might help me understand the modular concept as you're describing it because I'm very intrigued by it. It sounds as though not only have you given a lot of thought to it, but certainly, as you describe it, with full organic and independent capability, and with this ability to be networked and really be part of the joint theater. I mean, obviously, that makes an enormous amount of sense.

Let's, for the sake of discussion, assume that one of these new modular brigades, say, a heavy brigade, is in a conflict similar to OIF, and they've crossed the border of an enemy country, and they're moving on whatever the target is. Now, that modular brigade, which is self-contained, as you have described it, General, how would that, as you envision it, deal with both the supply chain and logistical problems that you have discussed? I appreciated, when General Schoomaker testified before us, his assessment, which went along with some of the after-action reviews, that there were some real logistical glitches. You're now about the business of trying to figure those out. On the one hand, how does this modular brigade perform differently or more effectively in conjunction with whomever on the supply/logistical end?

Then suppose this new modular brigade gets to a target objective and holds ground where all of a sudden you need military police (MPs) and civil affairs until something else occurs. Just kind of give me a more practical, down-to-earth explanation as to how we can be modular, smaller, more productive, and deal with these continuing challenges we have.

Either General Curran, General Casey, or Secretary Bolton: I'm just really curious, because the concept is so attractive, but if I could just understand it better.

General CURRAN. If you would permit me, I would like to address the last part of your point first. The brigade has moved, as you've stated, through a major combat operation, secured its objective, and is now transitioning into a different mission.

Senator CLINTON. But that happened so quickly.

General CURRAN. It does happen very quickly. The rest of the modularity story is not just about these modular maneuver brigades, heavy and light. The rest of the modularity story is that there will be support units of action, or brigades, that are in a force pool nested at what we call the "unit of employment level," division corps or Army of today. These pools of capabilities—MP, aviation, fires, psychological operations—will be resident and available to be tailored with the brigade.

As we talked about, we're changing a number of our positions within the Army, reducing the amount of artillery, and moving to more resident MPs, civil affairs, and psychological-operations capabilities within the organization. They will fill out and round out the support units of action. The support units of action are also modu-

lar in design. A combatant commander can pick and choose from this pool. "I need this many maneuver units of action. I need this many protection support units of action or brigades," which would include MPs and engineers. "I need this many sustainment units of action." From the force pool, the combatant commander will be able to tailor the force to meet the needs.

If we take OIF as an example, one of these new modular brigades is part of the 3rd ID. It's marching on to Baghdad. It arrives at Baghdad in the force flow. You could have additional support units of action that are following to flow into theater to meet up with that brigade. When it transitions to that new mission, it already will have some embedded capability. It has MPs and it has engineers already nested within the modular design. What we're speaking about now is really a transition to a stabilization mission, a peace mission. These will all be nested in modular capabilities at a higher echelon, but in a force pool that the combatant commander can draw upon.

I wanted to take that part, anyway.

Senator CLINTON. Thank you very much.

Mr. BOLTON. Senator Clinton, if I could add another example, and really it's what our sister Services are already doing. The Navy, for a number of years, if not decades, have used carrier battle groups, which bring together certain capabilities to effect some type of capability that the combatant commander wants—will have X-number of Aegis cruisers, destroyers, attack boats or submarines, carriers, a mix of aircraft, and so forth.

Back in the mid-1990s, the Air Force went to the expeditionary air forces, which then took fighters, cargo, tankers, and other assets, both airborne and space-borne, and put them in packages. The Army is doing a similar thing. But here, the scale is a little bit larger, particularly when you get onto the ground and particularly in stabilization situations.

As Mark has already pointed out, there are groups that we will modularize to take care of stabilization, whether that's contracting, setting up infrastructure, the civilian policing forces, opening up hospitals, libraries, mail service, and roads, and so forth. Once again, it's the combatant commander, who will drive this initially, to say, "This is what I want, and it's up to us to figure out which modules we're going to put together to meet that."

I agree with you, this is an interesting concept. It's exciting, and I'm glad to be part of it because some of my folks will be some of the first on the ground to take care of the infrastructure when we go into stabilization.

Senator CLINTON. General Casey.

General CASEY. Let me see if I can try it this way. Maybe if I compared it to the capabilities of a brigade moving on a mission today, compared to what a modular brigade would do, that would help out.

If, today, a brigade formation moves, it would have a reconnaissance company, a small unit, about 75 to 80 folks, and their job is to go out and find the enemy and develop the situation. The modular brigade would have a battalion, about 600 people, doing the same thing. The current brigade may get some time from a division-level UAV to look out in front of them. If they're really lucky,

they may have some small UAVs that they can use. In the modular brigade, the reconnaissance squadron would have its own UAVs that they would use to develop the situation in front of them. The target acquisition battalion or element with the artillery would have their own UAVs to develop targets for the artillery to shoot at. Instead of sharing time, they have their own, and they have their own in a way that facilitates the commander seeing the battlefield at the same time, getting his targets for him.

In the current headquarters, you have attachments showing up—your civil affairs, your MPs. They don't normally train together. Those folks are all built into the new headquarters of the modular brigade.

In the current brigade, you probably will have an Air Force liaison officer and a few small air liaison teams that you share down to the units. In the current modular brigade, you would have a joint fires planning cell, with all of the appropriate connectivity to reach back into the joint fire system. So much better able to see the battlefield, and to bring joint fires and joint effects into play.

The other thing is, because it has its own enablers, it can operate over a much wider piece of ground. When the division commander is trying to control all of his elements, they generally have to stay in close contact, or at least maintain contact. So it's a little more structured.

These modular brigades are designed to operate in a nonlinear fashion.

Senator CLINTON. It sounds, too, that you've pushed a lot of authority down to the combatant commander.

General CASEY. That's exactly right.

Senator CLINTON. Which makes a lot of sense. When we visited with a lot of the commanders when I was there with Senator Reed, giving them maximum authority to be able to operate was one of the best things that we did. It was kind of by default in a way because there was so much unexpected that people ran into.

Do you think, General, it would be possible to give us some sort of a visual display of this, with sort of the terms and the interconnections? It would be helpful to really lay it out because it is an incredibly creative concept, which I'm very intrigued by. I don't pretend to understand it, but you did the best you could to explain it, for which I'm grateful.

General CASEY. A picture is definitely worth a thousand words.

Senator CLINTON. A picture is worth a lot. Thank you.

Senator SESSIONS. Those were some interesting questions. Along with the commander at the brigade level, I came away from the Iraq experience with the belief that the area commander needs more ability to contract with local people directly. Of course, that means he has to have money in the pocket, some money to be able to do things. Most environments into which we seem to be coming into, you have a situation in which there is some stability on the scene. In the brigade, would you have any capability? Would anyone comment on that—for enhanced ability to actually have resources to dispense on short notice, to utilize local people to do things that are important?

Mr. BOLTON. Yes, sir. In fact, we call them contingency contracting officers. Depending on the situation, a lot of times those officers

are on the ground before the main unit shows up, to do exactly what you're talking about, to get with the locals, figure out who can bring rocks in to set up a landing zone and so forth. They're fully trained, and sometimes they even carry cash with them to start setting those up. It was exactly that way in the operation that we did in Afghanistan. You didn't see them, but they were there, starting to set up that infrastructure. Then as things stabilized, we, of course, sent in more folks.

That was particularly true in Iraq. When our soldiers had taken the capital, we sent, almost 24 or 48 hours later, someone over there to start looking at the contracting. I then took a colonel out of West Point to ask him to go over there and start setting things up while I looked for someone to go over there permanently. We have put those contracts in place, first for the military, and now we're doing that work for the Coalition Provisional Authority, as well.

Senator SESSIONS. Do you think, in this future concept, that you will have institutionalized that process better, so it can be more natural, and maybe people can be even trained in the pitfalls and advantages of contracting locally?

Mr. BOLTON. The contracting officers we send are first-branch qualified. These are soldiers; they're not folks we just took off the street from somewhere and put a uniform on them. They understand what it means to be a soldier. I don't accept folks until they've been in the Army for about 8 years. Thus they're qualified first in arms in whatever their branch is, and then they're trained as contracting officers. What we will do, as part of modularity and working with TRADOC, as we build, particularly the support elements is ask: How do we get our folks in there? What lessons have we learned over the last few years, as well as previous conflicts? What do we expect in the future? This is slightly out of my lane, but I work with my counterparts in Special Operations Command (SOCOM) and special operations—we also have the same thing there. They occasionally need contracting officers, and my folks are down there to help them. We will learn lessons from them as well.

But, to your point, we intend to do it much better in the future by being part of the modularity.

Senator SESSIONS. Thank you.

General Curran.

General CURRAN. Sir, in the modularity design at the unit-of-employment level, there is a contracting cell that has been mapped into that organization. What you saw in Iraq was an area commander, a division that is being mapped into the unit of employment-x (UEX) of today.

The other point I would make—and I should have made this when I was answering Senator Dole's question on the logistics side—is that it's interesting to note that this notion of modularity goes back at least to 1995, when TRADOC began writing some doctrinal literature about modularity. The first people to pick up on the modular design were the logisticians. In fact, if you go back and look at our tables of organization and equipment (TO&Es) today, you'll see that at echelons above division, the logistics community have gone to a modular design. Already, on the logistics side, there are modules of logistics capabilities that have already

been built into the TO&Es of our forces. Contracting would be one of those.

Senator SESSIONS. I just wanted to drive home the point that I came away from the Iraq experience and the Afghan experience, from my observations, with a strong belief that a major contractor, like Bechtel, might be necessary to bring a power plant or an oil refinery up. They're not out in some village 200 miles, 500 miles away, as the soldiers are already there. They know right then what needs to be done. It gives them a certain credibility and enhances their respect in the community if they can say, "We're going to fix this, and we'll pay you to fix this." I hope you would think about that.

Let me ask a few more questions: Maybe one of you choose to answer this, and if others would like to contribute—the Army has requested 3.2 billion for the FCS development. The FCS is a network system of systems comprised of 18 systems, as you noted. However, there are more than 150 complementary programs which must be funded. In support of the Army's future force, we often hear that Army transformation is more than equipment. What is the Futures Center's role in the FCS development?

General Curran, do you believe the user, represented by TRADOC has an adequate voice in the FCS development? I think that is important. I asked General Casey the other day. You have all of this theory and these ideas. We want to be doggone sure the average soldier knows how to access it and utilize it. Is that part of what you'll be working on?

General CURRAN. Sir, it is. The relationship that TRADOC, as the user's representative, and the Futures Center have with both the program manager (PM), and the lead system integrator (LSI), is hand-in-glove. If you noted, from our remarks, that Secretary Bolton, in his opening remarks on his discussion of FCS, could speak eloquently about the required capabilities that that program is bringing on. That is an indication of the marriage we have between the requirement, people, us, the users representative TRADOC, and with the acquisition community that is bringing this program together.

Specifically, we meet, in some cases weekly to monthly, in integrated concept teams between TRADOC, the PM, and LSI, that are working every piece-part of the FCS organization. The user representative is involved nearly daily with the PM and LSI in bringing these capabilities to the forefront. The decisions that need to be made with trades and those types of issues are brought to the user representative, because the user is the one who has identified and documented what the required capabilities are, the operational requirements doctrine that outlines what this family of systems is to bring as a capability to the Army. I would just tell you that I am very confident that the user is being well-represented with the PM and with the LSI in making sure that the required capabilities that we need, foresee, and update, are handled by the PM and the LSI.

Mr. BOLTON. Mr. Chairman, if I could add to that, absolutely spot on. As we're developing the requirements that were documented over 2 years ago, if you had gone to Fort Monroe to TRADOC headquarters, or out to Fort Knox, the armor school, you

would have found in those rooms, as our TRADOC colleagues were writing the requirements, Doctrine Requirement Centers, acquisition types, testers, logisticians, funds managers, contractors, and others, all in support of writing this document. That team continues throughout. The only way we can make the requirement of having an initial operational capability (IOC) in 2010 is to keep that team together. That team helped us get through that milestone last year—a record-setting milestone, by the way—and it continues today. Quarterly, we have a board of directors meeting. The user is there, all the other folks I just mentioned, and other PMs who manage things and systems that we need to have a FCS link to everything. They are there and adjusting their programs and what their contractors are doing so that we can all be ready to go in 2010. It is a tremendous effort.

That aside, one of the first meetings I had with the former chief, General Shinseki, was a meeting to talk about some element of the FCS. At the end of that meeting, I commented to him, “In the years that I’ve been in this part of the business, I had never seen senior-level attention this early in a program.” Normally, we have very good people, junior officers or civilians, who lock a program in, do good work, and then we bring in the colonels and the flag officers about 5 years down the road after they’ve locked in about 80 percent of the program. Here we have the senior leadership in the Army working the issues up front and then working on the requirements. I think that is unprecedented, but shows a commitment on the part of the Army and everyone else to get this done.

Now, our job as a team is to get it done and to go anywhere we have to go so that in 2010 we can deliver to the soldiers the capability they need. It is an extraordinary effort.

Senator SESSIONS. Well, I would agree that the top people need to be involved because they have a lot to offer. I asked, at a school system in Alabama that has tremendous academics, in a small town, why it was competing with the best high schools in the state. I asked this young principal. He said, “The superintendent.” I said, “Well, what does he do?” He said, “He meets with all the principals every morning, and we discuss what’s going to be taught, curriculum.” When you have your top people talking to the bottom people about how to win wars, how to fight and win, and what it takes to get it to them, that’s better than having bureaucrats up here and everybody else working it. It’s a good idea.

Let me just briefly ask you a question about this. Last December, Boeing and the Science Applications International Corporation (SAIC) as LSI, received a \$15.8 billion contract from the Army to oversee the FCS program through the system development and demonstration phase. What steps has the Army taken to work with, but also monitor, the Operating System Incorporated (OSI), to ensure that FCS stays within cost, achieves key performance parameters, and meets the schedule?

Mr. BOLTON. On the latter part, we have a measurement system. We call it “Earned Value Management System”—not new. We do this all by contract; so while the contractor uses that on a daily basis to see what progress they’re making on the work that I’ve asked them to do, the PM would typically get a monthly summary, and then quarterly I get the whole thing. I’ve told my PMs there

are certain things I'm looking for on that program to chart progress. Thus far, we're doing very well on that. If we're doing well there, then it tells me we're meeting the objective, and the objective is to hit a certain requirement at a certain time at a certain cost.

In addition, this LSI is a new concept for a program this large for the Army, and so we've had considerable thought about that before we did it. We have looked at it several times afterwards. We have an independent group right now out at Boeing, almost as we speak here, and at SAIC, to tell me, "Is this concept the right concept? Can we do it better?"

Now, why are we doing the LSI? The LSI, in my terms, is a general contractor. Take a house, for example. You go out and you pick the very best general contractor you can. You go to him with a blueprint of the house you want that you got from an architect. That's your requirement. You have so much money, and you want it done in a certain period of time. Then you let him pick the best trades, the best subcontractors, to get the job done. You periodically go out there and check on him.

That's what this LSI has been asked to do. You have a requirement coming from TRADOC. You have a certain amount of funding. You have a time element. Now, go pick the very best contractors to get the job done.

We went to another transaction authority because I wanted the very best in this country. That included folks who normally do not do business with the DOD. This other transaction authority, which allows us to put a contract in place without all of the rules and regulations that I would have to live, using the Federal Acquisition Regulations (FAR)—that is what we have. We have the best. Big contractors, for sure, but we also have some small contractors. As an example, iRobot. Most folks haven't heard about iRobot. But if you were at the trade center the day after September 11, you would have found some big contractors, like Raytheon, using imaging, and you would also have found iRobot, with small robots, looking for survivors. They're on our team now to help us with the unmanned vehicles and also helped us in Afghanistan last year.

I've talked personally with the senior leadership of Boeing and SAIC. I've told them that this is the way we ought to go. But both of us have to understand how this is working for the benefit of the soldier, as well as the benefit of the shareholders. I'm totally confident that I have their commitment to doing this and doing it right.

Senator SESSIONS. This has potential, and we've seen some good come out of that. But it is critical that we not assume, because we've got a contractor, we can go away, and the house is going to end up like we want it. The missus may not be happy when it's over. So the intensity of management and the holding their feet to the fire and watching to make sure schedules are met are important.

Alabama has the third-largest number of National Guardsmen and women activated. Just last week, the adjutant general (TAG) told me that their recently deploying units received all the gear that they needed at the maximum-on-the-ground (MOG) station except for one soldier, who was so big it wouldn't fit, and he didn't

get to go. But maybe we're making progress with regard to making sure that everybody is fully equipped. As a matter of fact, I know we are.

General CASEY. You can report to any constituents that any soldier going into Iraq for this OIF II rotation will cross the border with his full body armor on.

Senator SESSIONS. Very good. Senator Lieberman mentioned setting the force as the Army units rotate back from Iraq. There is going to be a lot of damage and a need and some cost involved in resetting that force. We understand that most of the cost will be in the operation and maintenance account as equipment is repaired and serviced; however, we also understand there will be additional procurement costs to replace combat losses.

General Casey, can you give us a sense of how many helicopters, trucks, and other equipment will require repair or replacement, and where does the Army intend to get this equipment? What's the status? We have heard some comments that there are boneyards for equipment in the theater that need to be fixed. As we learned from the last Gulf War, that was an expensive process to get our equipment back in first-rate shape. Would you like to comment on that?

General CASEY. Yes, Senator, I will. Let me just give you a sense of the combat losses, and then I'll transition to the reset and close out with Army prepositioned stocks, which I think will get at the boneyard question you had.

We've lost a total of 41 aircraft, 8 M-1 tanks, 12 Bradleys, and 76 HMMWVs, as an example of the combat losses. Those will all have to be replaced. We believe, I think rightly, that all of these losses, as well as the resetting requirements, are war-related expenses. We will seek to pay for them through the provisions of supplementals that are devoted to the war-related expenses.

For the reset, we have had a triage team there in-theater examining the vehicles. There were basically two levels—actually, three levels of reset for ground equipment—and an additional one for air. The first is what we call 10-20 standards, which is basically a service, like you take your car in and get a quarterly service. That's what that is. The next level was what we called "delayed desert damage," and that's a more intensive inspection to make sure that we have captured all of the problems on the vehicle or system that has been caused by spending a year in a harsh environment like Iraq. The third level is sending it back to depot for an overhaul. What we've been doing is inspecting the vehicles there in-theater, and, instead of sending it back with the unit, if it needed to go to depot, it goes straight back to depot. Then the fourth level—this applies just to aviation—what we call the Special Technical Inspection and Repair (STIR) program.

General CURRAN. We call it reset now.

General CASEY. No one could remember what STIR stood for, and now we call it reset, and that's not an acronym. That's basically a program—probably it's right between the service center and a complete overhaul—but it gets into all of the engines, parts, and things, and inspects them for desert damage. We make sure that we're not missing anything in our aviation fleet as we go forward, Army prepositioned stocks.

Senator SESSIONS. On the harsh conditions, how much more degradation have the aircraft sustained as a result of that than they would in normal operations?

General CASEY. I would yield to the senior aviator at the table.

Senator SESSIONS. He should know.

General CURRAN. The damage that they've experienced has been significant because of the fact that the major combat operations did not last a long time, and that we were able to ultimately get our platforms onto some hard stand to operate from; it started to reduce that. But every single aircraft that is coming back is going through a reset. Based upon what the team found when they went over there, we seem to be falling pretty much in line with what we expected we would have to do to the aircraft.

The other part of reset, though, includes taking some preventive measures of the aircraft that are deploying over in OIF II with putting on what we call a "desert kit." This includes better barrier filters and some additional kit that we're putting on the aircraft so that they do not receive as much damage from the harsh environment as they would if they didn't have these capabilities. We think the desert kits will save us a lot of engines. While those aircraft were operating over there in the desert sand, we will save some engines in that.

Senator SESSIONS. It's the sand that does a lot of the damage?

General CURRAN. Predominantly sand, yes, sir.

Senator SESSIONS. Secretary Bolton, have you done any studies or planning with regard to some of the major reset expenditures as to whether or not you could also update the equipment and aircraft to a higher level of modernization at the same time while you're doing one? Have you done a study, or would that be a good idea maybe to study now? Because some of them are going to take a lot of work, and we may see we could upgrade them at the same time.

Mr. BOLTON. Well, that had already been one of our intentions. That is, we brought equipment back, if we have an opportunity during the reset, to replace those parts with parts that are more reliable and upgrade it. That has been nothing new; we try to do that as a normal course of business. If those are also going back to the desert, as General Curran just indicated, then are there things we can do to ease the burden on the troops in the field once it gets back over there? Desert kits are one. On the ground vehicles, we can put pre-filters on the air filters to filter out some of that powdery sand before it actually gets ingested in the engine. We will take a look at all of those. But you're absolutely right, when we have the opportunity, we will upgrade those parts.

General CASEY. Senator, can I get to your boneyard question there?

Senator SESSIONS. Please.

General CASEY. We have two of our prepositioned sets still in use in Iraq. That's our float prepositioned number three, and our on-the-ground stocks, number five. Over a third of those are still actually in Iraq being used by units. The boneyard you referred to is at the prepositioned site there in Kuwait. We have some 9,000 vehicles that are part of these two sets that have been used and returned in varying states of repair. About a month or 6 weeks ago, we asked our Army Materiel Command to put a team out there to

get us an assessment of what it's going to take to put all of this back together. That is in process. I would expect to have something in another 30 days here.

But, again, I point out to you, both of those sets are very much in use with the forces in Iraq, and we will probably use a good portion of them to set a stay-behind equipment fleet there in Iraq, so we could just get to the point where we rotate people in and don't have to keep shipping equipment.

Senator SESSIONS. Well, that would make some sense to me. I know the unit out of Foley, Alabama. I was there when a National Guard unit departed, and they were taking all their equipment. You wonder if there's equipment there that they wouldn't have to take.

General CASEY. We weren't able to get it done for this rotation.

Senator SESSIONS. Tell me about this. I know you've been working on it. I know Secretary Rumsfeld and General Schoomaker have really taken an intense interest in this rotation. It's a huge deal. I know a lot of it falls on you; maybe all falls on you. I haven't heard any big complaints, so I guess that's a good sign. So far, what can you tell me? How is it going?

General CASEY. It's going very well. It has been a huge effort. It's a quarter of a million people going back and forth. It includes the mobilization of about 70,000 guardsmen and reservists, who have all been equipped, trained, prepared, and shipped over, in addition to the active components. You will recall the three enhanced separate brigades that are going over. We made it a point to give them the very best equipment available, this RFI. We gave it to them before we gave it to the Active Forces. I just happened to be up in Fort Lewis, Washington, when this 81st Brigade was going through the warehouse getting their stuff. The looks on these soldiers faces when they saw they were getting the best that money could buy, they realized they were into something serious. So well-equipped, well-trained, all of those three combat brigades have been through rotations at our Joint Readiness Training Center or National Training Center, where they replicated the environments they were going into in Iraq. The mobilization has gone, in my view, very well. The U.S. Transportation Command (USTRANSCOM) has done a magnificent job managing the rotation of forces. We are over the hump here. Last week was really the peak week of movement back and forth, and we're really on the downhill side.

The demobilization also continues to go well. We set a standard at the beginning. Ten days from the day a soldier sets foot on the ground in the United States, they're off active duty unless they have some medical problem that requires them to stay longer. Right now, our average is about 7 or 8 days, so that is also working very well.

I, like you, judge not hearing anything as being good news, but we monitor this very closely from the Department of the Army staff.

Senator SESSIONS. Well, you did one big thing, really important, which was realizing it was a big deal, and you put a lot of time and effort and foresight into it. Otherwise, it would not have gone as well as it has. That's good planning.

I would just say, on behalf of the Guard and Reserve, I spent 10 years in the Army Reserve, and we have a lot of great friends still there, and still a lot of National Guardsmen from my State. They want to serve. They do not feel they're victims. They want to be utilized well, and they didn't want to come home. They wanted to do something worthwhile. They don't want to be called up to piddle around. My little observations about that is, if we could keep those deployment times down, 9 months, 6 months, 9 months, and do the premobilization as much at home station as possible, so that a soldier is away from his family closer to 6 months than 13 months, that is a huge difference—a huge difference for the employer. That means you have to move more people and has certain cost in it. In addition, in an active combat situation, you have to do what you have to do. But in a post-combat hostile environment, to move to that direction would be something that would play well with our Guard and Reserve.

For the most part, we have done well with giving them good work to do, and I certainly believe they have done an excellent job.

General CASEY. If I could, both of the Guard and the Reserve, Steve Blum and Ron Helmly, are developing rotational packages so that they'll be able to tell their guardsmen or reservists which package they're in. That will allow them to figure out when they're next up for rotation. We're working very hard to get this down to about once every 5 or 6 years.

We'll be able to show you that in about 60 days, and it will be a paradigm shift that will allow us to bring predictability for the guardsmen and reservists into this environment of steady-state mobilization we're in.

Senator SESSIONS. Very good. I know, Secretary Bolton, you talked about, at the beginning, force-protection issues and the importance of that. Is there anything you all would like to add about assuring the American people that we're doing what we can to make sure that the soldiers have as much protection as we could possibly get for them?

Mr. BOLTON. Well, we rely heavily upon the commanders in the field to tell us what's going on. We've put PMs, acquisition types, in the field with the combatants. As I mentioned earlier, their job is to report back what do they need, and to get it to them as quickly as possible. We will pull out all stops to make sure that the men and women have the protection that they need, both uniform and DOD civilians. We've done a very good job along those lines.

There are, as I've said to industry, two issues in my mind. One is a tactical one, which means get the stuff and the protection there now. We're doing it, both land-based and airborne systems. When this phase is finished, we have a strategic phase, because I'm going to come back to you and ask a very simple question. The question is, how do we do what we've done over the last 12-plus months in 30 days, the next time this happens, and work through all of the hurdles between now and then? Because, surely as we're sitting here, we will do this again, and some man or woman, one of our soldiers, will need something that we didn't anticipate. Things change. The enemy changes, very adaptive. Thus how do we compress this time? It's just another step in trying to make sure that

our men and women have the very best throughout the entire engagement.

We're committed to that, and I'm very happy with what has happened in responding to what the soldiers need on the battlefield.

General CURRAN. Senator, if I might add. As we look to the future and the FCS, survivability is one of the key performance parameters within that program. It is a holistic look at survivability. It is not just the platform, but it's the whole system of systems and its survivability, and how much protection is provided to the force. Within our logistics arena, we are also looking at our HMMWV and cargo fleet, what the required capabilities are going to be in a non-continuous, nonlinear battlefield, as we know today and into the future. We're addressing survivability protection for the soldier in the future as we are doing it today, as Secretary Bolton spoke to.

Senator SESSIONS. We would like to see this reset. I might ask you again about how we're coming with the reset situation. As I understand, there is money in the account to begin this. Our depots are not at full capacity, from what I understand. I hope that we're not allowing this to build up too much in hopes for a supplemental or something to come down, and we can take it all out of there. I think Senator Lieberman will be coming back, and I wanted to ask about the safety of our personnel, and will we be doing any after-action studies about that?

I have a friend, Sergeant Larry Gill; his father was a police officer, and he's now a police officer in Alabama. He was a marine in Lebanon when the embassy was bombed, one of the first war-on-terrorism attacks, and received a Purple Heart. Then he went over with a Guard unit and was pretty badly injured in the lower leg from a grenade. It seems like there's a number of lower-leg injuries, and you wonder about things. Can we come up with better uniforms that have more protection? Maybe it won't guarantee protection in a severe attack, but could minimize damages. He's had a number of operations, and he's back at Walter Reed now. Every little bit helps. Have we given any thought to other more creative ways that we could make our soldiers safer?

Mr. BOLTON. Yes, sir. I mentioned, in my opening remarks, that the SAPI plates are protecting the torso from injuries that would have killed soldiers formerly. As you've just pointed out, soldiers are being injured, arms and legs and so forth. A bit over a year ago, we struck a relationship between the Army, academia, and industry to work nanotechnology—to work down at the atomic level with materials. One of the aims was to take a look at the materials we currently use in the body armor and see if we can't reduce the thickness of it. Don't reduce the capability; if anything, increase the capability, but reduce the thickness.

I'm happy to say we're making great progress along those lines. A week or so ago, at one of our conferences, we demonstrated one of the materials, where you could take a similar thickness—and this is about the thickness of a couple of T-shirts. You take an icepick and the normal Kevlar material, and you would go right through it. With this material, I don't care how strong you are, you cannot go through it. What I've asked the folks to do is to take the inch-thick thickness of the SAPI plate, reduce that to the thickness of your shirt, and now put it over the entire soldier. That's one of

the areas that I think we're going to be able to work. That will give us the torso, will give us the arms, and will give us the legs. It won't give you 100 percent against all the threat but will greatly reduce some of the problems we've had and injuries we've had. That's one area.

The other is the vehicle itself, looking at lighter-weight composites. One of the problems we had with the armored HMMWV: great protection, but you've added a lot of weight, in some cases, as much as 7,000 pounds worth of weight. If you look at the original HMMWV, it was not designed to carry that. Now, the ones coming out that are manufactured are heavier and bigger suspensions and so forth. One of the concerns we have from some soldiers who are there is that they want to be on the offensive, and I would be, too. If we have an up-armored HMMWV, on the one hand, you're protected; on the other hand, you can't get after the bad guys. So how do we design a vehicle that allows you to be protected and, at the same time, have a lot of response? We're looking at materials that can give equal or better protection, but also lighter for the vehicle.

On your first point, and that's lessons learned, the leadership we have in the Army—and this goes across the joint staff and the other Services, at least in my experience—is, for the first time, really getting all of the information, or most, on a real-time basis, with due consideration to security, back to us quickly. We see that in the Army and how we've been able to do the RFI and equipping, getting the information and getting things to the soldier in a short period of time. Taking the lessons learned—we just had a group over there take a look at the helicopters that have been shot down, what caused it, what can we do, providing that information and field feedback real-time to the pilots over there, and sharing that information.

We have developed, over the last year, a concept in the Army we call the uniform scientist. Their job is to eventually be with the soldiers full time—there are some cringes from my colleagues sometimes when I characterize this—in the future, and I call it the “Spock syndrome.” Anyone who has seen the television or the movie “Star Trek” knows there's a science officer onboard. The science officer's job is to know the technology of that fleet better than anybody else, and, to as large a degree as he can, understand the enemy's technology, and then, on real-time, advise the commander what to do. That's what we're training our folks to do, and we started that over a year ago.

The difference between what I intend to see happen and that particular television show is, I want you reporting back to the States what's going on, as well, so we can fix the things before we send the troops over and do that in real time.

So a long way of answering the question, we are taking those lessons learned seriously. We are working with the science and technologists to provide us better equipment as soon as possible.

Senator SESSIONS. General Curran, do you want to comment?

General CURRAN. Sir, if I could add, we in the Futures Center have been charged to look at how to spiral matured capabilities into the current force, to address critical capability gaps in the current force as they perform their mission. In that process, we leaned heavily on operational needs statements that come out of theater,

out of lessons learned that came from the 3rd ID, that came from all the forces that are participating in OIF, through our Center for Army Lessons Learned at Fort Leavenworth, through Joint Forces Command—joint lessons learned. We're pulling from those joint lessons learned and packaging those to determine the list of priorities of what are the most critical capability gaps that exist in the current force.

When you look at that list today, the top of the list is soldier protection. Second is probably network capabilities. We've really focused on the top 10 or so. Through the partnership between our Research and Development Command and with Assistant Secretary of the Army for Acquisition, Logistics, and Technology (ASALT), we give that list to them, and so they're out actively searching for what matured capabilities they have that could address that gap. Then through the vice chief of staff and through the G-3, we've established a rapid-equipping force that can quickly, if they can get it in in 30 days—and that's almost a criteria; I don't want to use this capability unless it's for a very quick turn—get that kind of capability into the force. We've used that in addressing things like IEDs. We have done it for a number of other aspects of using a rapid-equipping force to get that in. TRADOC's role is to identify what the gaps are. We're almost in daily contact with leaders in the field and working that. We are using the students at Fort Leavenworth and in our schoolhouses, who have just returned from theater, and even canvassing them to say, "While you were over there, it's fresh in your mind, tell us what kinds of capabilities you could have used to do your job better." We are collecting that information. It is really information technology that is allowing us to stay so connected, and we're leveraging that because, as the Secretary said, the sharing of information and lessons learned is moving at much faster pace, and it needs to. We need to leverage that information technology to make that happen.

Senator SESSIONS. Well, I will just say this to you. One of the things that is most commendable about American military is our intense work on after-action reports and our willingness to learn from mistakes. That is something to be valued and cherished. Too often, the old mentalities is you could never admit a mistake; you couldn't talk about problems that occurred. I believe we've moved beyond that. That is why we continue to seem to do better each time we're in a hostile environment than the time before. I really salute you for that.

We have a number of questions that I would like to submit to you in writing.

This has been a very good exchange. I believe we are on the road to a continuing improvement. In your statement, Secretary Bolton, you used the phrase "in the continual transformation." It will never end. It will always be a continual transformation. I do respect and value your decisions. If you have something new that will work now and will ultimately be part of the FCS, why should we wait? Why don't we have it in there now? We use it, we get familiar with it, and it actually protects or enhances the combat capability of our soldiers.

Thank you for your excellent testimony. Your written statements will be a part of the record. We will keep the hearing open for ques-

tions from other members. Senator Lieberman wanted to get back, but I understand he has been held up on the floor and will not be able to make it.

We are adjourned.

[Questions for the record with answers supplied follow:]

QUESTIONS SUBMITTED BY SENATOR SESSIONS AND SENATOR LIEBERMAN

ARMY REORGANIZATION

1. Senator SESSIONS and Senator LIEBERMAN. General Casey, we understand that between fiscal year 2004 and fiscal year 2011, the Army estimates the total cost for modularity to be \$20 billion, including an fiscal year 2005 shortfall of \$2.4 billion identified as part of the Army's unfunded priorities list. The Army has not provided an estimate of the costs associated with converting National Guard enhanced separate brigades. How does the Army intend to fund the fiscal year 2005 shortfall?

General CASEY. The Army plans to fund the fiscal year 2005 shortfall with supplemental dollars in fiscal year 2005. It has been listed and detailed as our priority on the unfunded requirements list for fiscal year 2005.

2. Senator SESSIONS and Senator LIEBERMAN. General Casey, is this restructure funded in the Future Years Defense Program (FYDP)? If not, how does the Army intend to fund the restructure?

General CASEY. Modularizing the Army is not currently funded in the FYDP. To fund modularization without placing additional risk to current operations or future force transformation, the Army requires assistance to cover the costs of modularity.

3. Senator SESSIONS and Senator LIEBERMAN. General Casey, what are the decision criteria for going to 48 active component brigades vice the 43 currently planned and approved by the Office of the Secretary of Defense?

General CASEY. The decision criteria for going to 48 active component brigades will be based on the defense strategy and its 1-4-2-1 force sizing construct, regional combatant commander requirements, and the level of operational commitments we face in fiscal year 2006, to include the need to generate forces in support of the Force Stabilization concept and to sustain a forward rotational posture of engagement. The Secretary of Defense will make the final decision to go to 48 brigade units of action in fiscal year 2006, based on these factors and projected requirements.

4. Senator SESSIONS and Senator LIEBERMAN. General Casey, as we understand your plan, the Army intends to use existing platforms to equip the additional active and Reserve component brigades. If you are using existing resources, what makes these new brigades more lethal?

General CASEY. The lethality of a unit is derived from more than the number of combat systems it contains. It is derived through the application of available firepower, either organic or joint fires, and enablers such as command and control systems, and multi-source intelligence and reconnaissance capabilities. Improvements in command and control capabilities and joint integration have multiplied the effectiveness of small, agile land forces and changed the character of tactical and operational warfare. Consequently, modular units of action (UAs) will have a number of embedded enablers that will lead to more timely and precise engagements that yield a desired outcome. Increases in the number of sensors and reconnaissance platforms allow these units to find more of the enemy sooner, and direct more firepower against them from a greater variety of sources. The UA is a more flexible, adaptive, and self-contained entity, allowing for a more focused package of capabilities that can be applied against a wide array of enemy threats. The Army's vision for the future includes improvements not only in combat systems design but also improvements in soldier and leader training and development, systems integration, cross-service integration, and command, control, communication, computer, and intelligence capabilities, which will all enhance force lethality.

5. Senator SESSIONS and Senator LIEBERMAN. General Casey, are there equipment shortfalls associated with this restructure? If so, what are they and how do you intend to fund these shortfalls?

General CASEY. Transforming the Army to a modular design will result in different organizational requirements for equipment. Invariably, the Army will experience some shortfalls. Minimizing these shortfalls is accomplished by starting with a disciplined requirements process backed by sound analysis, which ensures that we

provide the right quantities and types of equipment to modular units. Although we are still analyzing modularity requirements across the force, much work has been done to date and an emerging equipping strategy has been developed that is designed to maximize combat capabilities across the force at the lowest possible cost.

The first step is to look across the current organization and determine where equipment can be harvested in support of the modular design. For example, we have found that as we transform artillery units, almost 75 percent of the total demand for artillery computers can be satisfied by cross-leveling within the units that are transforming. In addition to cross-leveling internally, we have also found that there is some excess equipment external to the transforming units (including pre-positioned sets and depot stocks) that can be used to resource the modularity effort.

Once we have cross-leveled all available existing stocks, our next step is to refurbish non-operational equipment (where possible) and then use that equipment to fill shortfalls. Depot stocks of the Q-36 Firefinder Radar, for example, can be rebuilt for a fraction of the cost of new procurement.

A good deal of the equipment required by modular units has already been programmed for in previous planning periods; adjustments in fielding schedules will ensure that those units transforming receive the right equipment at the right time. When production schedules make that impossible, the Army will selectively authorize "in lieu of" items that provide the unit with a "good enough" capability until we can issue the proper piece of equipment. Eventually, the unit will receive new equipment, but the Army intends to use new procurement as a last resort wherever possible.

Transforming the Army to a modular design is a process that will extend from fiscal year 2004 through fiscal year 2007. Since much of the effort will fall before our current fiscal year 2006–2011 programming period, and because the Army is already under considerable fiscal pressure due to ongoing operations, we may have to ask for external assistance with those resourcing challenges that cannot be solved by the approaches discussed above. That request for assistance will likely take the form of a supplemental request where the Army asks for the minimal amount of new funding required to achieve core essential capabilities.

6. Senator SESSIONS and Senator LIEBERMAN. General Casey, what is the estimated cost to reorganize the Army National Guard to ensure its brigades are similarly designed?

General CASEY. The estimated cost associated with the Army National Guard Brigade Combat Team (ARNG BCT) modular conversion as captured in the fiscal year 2006–2011 Program Objective Memorandum (POM) is \$7.944 billion for 33 BCTs. This cost reflects personnel, training, installation, as well as equipping requirements. In terms of equipping, the cost reflects those requirements termed "critical," which equates to Base Table of Organization and Equipment (BTOE), combined with authorized substitute items of equipment, as well as some items of modernization.

The BTOE documents the minimum essential personnel and equipment requirements for accomplishing the wartime mission. The BTOE does not assure parity of equipping with the active component force, nor does it assure complete interoperability of the total force. The programmed costs do not reflect the costs associated with the emerging requirement for the units of employment (UEX) given that the organizational design has yet to be completed. There are eight UEXs to be fielded into the Army National Guard. The UEXs are intended to replace one for one the eight current divisional headquarters that exist within the ARNG.

The end state for ARNG is 34 brigades. Of these brigades, 33 are being programmed for funding within modularity. The 34th ARNG brigade or the Stryker Brigade Combat Team (SBCT), the 56th SBCT Pennsylvania ARNG, is being funded separately as part of the Army's commitment to the SBCT program.

7. Senator SESSIONS and Senator LIEBERMAN. General Casey, what is the planned time line for Army National Guard reorganization?

General CASEY. In 2005, the following units will be converted: 30th Armored Brigade, North Carolina; 39th Infantry Brigade, Arkansas; 81st Armored Brigade, Washington; and the 34th Infantry Division headquarters, Minnesota.

In 2006, the following units will be converted: 116th Armored Brigade, Idaho; 155th Armored Brigade, Mississippi; 256th Infantry Brigade, Louisiana; 278th Armored Cavalry Regiment, Tennessee; 1st Brigade, 34th Division, Minnesota; 56th Brigade, 36th Division, Texas; 35th Infantry Division headquarters, Kansas; and the 42nd Infantry Division headquarters, New York.

In 2007, the following units will be converted: 41st Infantry Brigade, Oregon; 48th Infantry Brigade, Georgia; 218th Infantry Brigade, South Carolina; 2nd Brigade,

28th Division, Pennsylvania; 55th Brigade, 28th Division, Pennsylvania; 37th Brigade, 38th Division, Ohio; 28th Infantry Division headquarters, Pennsylvania; and the 38th Infantry Division headquarters, Indiana.

In 2008, the following units will be converted: 49th Brigade, 36th Division, Texas; 149th Brigade, 38th Division, Kentucky; 2nd Brigade, 40th Division, California; 3rd Brigade, 42nd Division, New York; 50th Brigade, 42nd Division, New Jersey; 86th Brigade, 42nd Division, Vermont; 39th Infantry Division headquarters, Texas; and the 40th Infantry Division headquarters, California.

In 2009, the following units will be converted: 29th Infantry Brigade, Hawaii; 32nd Infantry Brigade, Wisconsin; 45th Infantry Brigade, Oklahoma; 53rd Infantry Brigade, Florida; 92nd Infantry Brigade, Puerto Rico; 2nd Brigade, 34th Division, Iowa; and the 29th Infantry Division headquarters, Virginia.

In 2010, the following units will be converted: 76th Infantry Brigade, Indiana; 207th Infantry Brigade, Alaska; 1st Brigade, 29th Division, Virginia; 3rd Brigade, 29th Division, Maryland; 26th Brigade, 29th Division, Massachusetts; and the 66th Brigade, 35th Division, Illinois.

FUTURE COMBAT SYSTEM

8. Senator SESSIONS and Senator LIEBERMAN. Secretary Bolton, last December, Boeing and Science Applications International Organization (SAIC), as the Lead System Integrator (LSI), received a \$14.8 billion contract from the Army to oversee the Future Combat System (FCS) program through the system development and demonstration phase. There may be a few concerns regarding overall FCS program management. For example, it appears that the LSI has awarded one of the most important parts of FCS, the network software, to themselves. Do you believe the current firewall provides adequate safeguards to assure that the Army and taxpayers receive the benefits of competition and innovation?

Mr. BOLTON. All FCS firewalls, including Boeing subcontract firewalls were reviewed in detail by Tank-Automotive Armaments Command, Army Materiel Command, Department of the Army (DA) legal departments and PM FCS acquisition personnel. The reviews concluded that Government Sensitive Information (GSI) and Competition Sensitive Information (CSI), and resulting information were held in strict confidence and with suitable safeguards. The U.S. Army's Office of General Counsel by direction of 17 June 2003 from Acting Secretary of the Army, R.L. Brownlee conducted a review to ensure that sufficient firewall safeguards were in place under the FCS for Boeing and its major subcontractor, SAIC. Although PM FCS was not provided a written copy of the report, PM FCS is aware of no concerns expressed as the result of this report. The Warfighter-Machine Interface (WMI) is the only software application awarded to Boeing entity, The Boeing Company, Mesa, Arizona. As the Army Acquisition Executive, I personally witnessed the process in action during the source selection and was continuously apprised of its progress. At least three independent reviews of the process were conducted and found that the process had integrity. The Army is satisfied that the process worked.

9. Senator SESSIONS and Senator LIEBERMAN. Secretary Bolton, describe in detail any firewall protections you have in place for both LSIs and, more specifically, outline how those protections will be managed over the life of the program.

Mr. BOLTON. On the FCS Program, Boeing, as the LSI, has procedures and practices in place to address potential conflicts of interest that might emerge as a result of operating in the dual roles of source selection authority and competitive bidder. Boeing has implemented an organizational conflict of interest mitigation plan, including the creation of firewalls around certain types of information. Boeing's established firewall procedures cover Government Sensitive Information (GSI) and Competition Sensitive Information (CSI). Boeing requires all employees/managers who may be involved in the FCS program to acknowledge that they will fully comply with the applicable firewall restrictions should they have access to GSI or CSI. Additionally all employees/managers involved in the evaluation of competitive subcontract source selection must sign a separate confidentiality form.

Under the FCS program, the Army recommended that Boeing require Firewall provisions in subcontracts where access to GSI and CSI will occur. These subcontract firewalls establish thresholds to adequately safeguard information on all levels. In accordance with the Department of Defense best business practices, "firewall" procedures of the LSI and of the major suppliers are documented in writing and reviewed by the Army to ensure that proper strict segregation of information is maintained and that a level playing field is preserved.

10. Senator SESSIONS and Senator LIEBERMAN. Secretary Bolton, we understand the FCS contract uses “Other Transaction Authority (OTA)” rather than traditional Federal Acquisition Authority contracting rules. Can you explain why the Army is using OTA in the management of the contract and how it intends to manage the program with this authority?

Mr. BOLTON. An OTA was chosen because it provides a continuation of the philosophy used for FCS CTD; a logical extension of effort in transition from the Defense Advanced Research Projects Agency to the Army and maximizes the flexibility to implement the FCS functional allocations and to make trades. The Army intends to transition from an OTA to Federal Acquisition Regulation (FAR) contract for production and deployment activities.

What is an 845 Other Transaction?

- Legally binding contractual agreement outside the FAR
- Basic contractual requirements met—meeting of the minds, legal purpose and exchange of consideration
- Provisions are based on sound business judgment and the needs of the specific acquisition—not imposed on a one-size-fits-all basis
- Not authorized for production at this time
- Typically cost reimbursement structure—profit allowed
- Variant specifically authorized by statute for prototype procurement

11. Senator SESSIONS and Senator LIEBERMAN. Secretary Bolton and General Casey, we understand that there are more than 150 complementary programs which must be funded in support of the Army’s future force and FCS. Some of these programs are more important than other programs. For instance, the FCS network depends on the Joint Tactical Radio System and the Warfighter Information Network-Terrestrial for the communications architecture. Many of these complementary programs are not under the jurisdiction of the FCS program management office. What steps has the Army taken to ensure these complementary programs are synchronized with the FCS program?

Mr. BOLTON and General CASEY. As part of the joint Army-OSD review and analysis process leading to a successful FCS Milestone B decision in May 2003, it became clear that, for the FCS program to succeed, other existing programs with systems essential to the system-of-systems employment concept for the FCS-equipped UA needed to be synchronized with FCS program development and fielding timelines. Accordingly, the Army, in coordination with OSD, has developed complementary systems management processes across multiple organizational levels. Within the FCS program, the Project Manager, Unit of Action (PM-UA) has partnered with the LSI to integrate complementary programs into the overall FCS program. Two types of arrangements are used as the primary mechanisms for ensuring synchronization when the FCS program identifies an existing or developmental program as having applicability to FCS—associate contractor agreements (ACAs) and memorandums of agreement (MOA) or subordinate MOAs (SMOA). To secure contractor-to-contractor synchronization, the LSI develops ACAs with the prime contractor for each identified complementary program. To ensure government-to-government synchronization, Program Executive Office, Ground Combat Systems (PEO-GCS) develops MOAs with other Program Executive Offices (PEOs) responsible for respective complementary programs and PM-UA develops SMOAs with program managers (PM) responsible for respective complementary programs. Within the Army, the Deputy Chief of Staff, G8 and Military Deputy, Assistant Secretary of the Army (Acquisition, Logistics, and Technology) have established a complementary systems management and oversight process documented in a memorandum of agreement (MOA) signed in August 2003 [This is currently under revision to include the TRADOC Futures Center as “tri-chair” at every level of the synchronization effort]. This MOA established an Army Complementary Systems Synchronization Integrated Process Team (IPT) to synchronize the network, survivability, lethality, sustainability and training aspects of FCS with 1-, 2-, and 3-Star General Officer Steering Committees (GOSC) for review and approval of synchronization recommendations. Synchronization IPT recommendations that include adjustments to complementary program funding, scheduling, or performance requirements are provided to the Army Acquisition Executive (AAE) for review or resolution prior to implementation. Within OSD, FCS Defense Acquisition Executive Summary (DAES) reporting is now grouped together with key complementary system program DABS reporting to the DAB [i.e., FCS is now grouped together with Joint Tactical Radio Systems (JTRS), Warfighter Information Network-Tactical, Distributed Common Ground Station-Army]. If an FCS-UA Complementary System synchronization issue resides external to the Army and cannot be solved at the PEO level, the Army’s Complementary Systems Synchronization IPT will meet with additional members included to represent their respective

services/OSD organizations, as required. Once alternatives are assessed, the Synchronization IPT presents its recommendations to the AAB in preparation for convening an Overarching IPT (OIPT) or joint OIPT, depending on the issue, to assess and present a recommended course of action (COA). If the COA can be effectively instituted at the OIPT level, the DAB will be notified of the decision. If consensus cannot be reached, the OIPT will recommend convening a special DAB to bring the issue to closure.

12. Senator SESSIONS and Senator LIEBERMAN. Secretary Bolton and General Casey, can failure to fund these programs derail any future system of system reviews for the FCS program?

Mr. BOLTON and General CASEY. The Army recognizes the importance of key complementary programs to the development and fielding of FCS—especially those supporting the FCS Network. Perturbations in any of these programs, whether due to resourcing adjustments or other causes, could incur unique impacts to the FCS Program, to include possible schedule impacts, requiring individual assessment and resolution. Accordingly, the FCS Program has established a robust risk mitigation strategy for those critical technologies and complementary systems that are on the FCS critical development path. The FCS Program is mitigating these technical risks through employment of a formal risk management process with OSD/DA oversight and through documentation of customer-supplier relationships with FCS technology suppliers through written Technology Transition Agreements (TTA).

The FCS Risk Management Program Plan lays out the methodology and processes used to manage programs for both FCS core critical technologies (CT) and FCS complementary programs (CP). Risk mitigation plans (RMP) have been developed, or are in the process of being developed, that address both technology maturation risk and system/system-of-systems integration risks into the FCS Family of Systems (FoS) and the greater UA at the system-of-systems level. Where applicable, these RMPs contain technology “off ramps” or “tollgates”—specific decision points and criteria where decisions would potentially be made to use alternate, less risky (and potentially less capable) technologies and technology development and integration strategies—or, in the case of complementary programs, alternative complementary programs. Decisions to use these “off ramps” or “tollgates” will be made based upon cost, schedule, performance, and/or technology maturity criteria, and are included in many of the on-going trade studies. The FCS program will execute the off ramps, as needed, when building the program technical baseline. However, the overriding consideration to any decision to execute an “off ramp” is to understand that the focus ultimately is not on these technologies or CPs and their respective alternatives (taken individually)—but in how each impacts the overall performance of the FCS system-of-systems construct.

13. Senator SESSIONS and Senator LIEBERMAN. Secretary Bolton and General Casey, the FCS network is the key aspect of the program that will make the current and future units of action more lethal and capable. Unfortunately, the two programs which will provide the communications backbone for the network, the Joint Tactical Radio System, and the Warfighter Information Network-Terrestrial, are not part of the FCS program. Are these two programs fully funded in the fiscal year 2005 budget request?

Mr. BOLTON and General CASEY. The Joint Tactical Radio System and the Warfighter Information Network-Tactical are fully funded in the fiscal year 2005 budget request.

14. Senator SESSIONS and Senator LIEBERMAN. Secretary Bolton and General Casey, recently, an Army general stated that the Army and industry must do everything possible to give FCS capabilities for soldiers fighting terrorism now rather than waiting until 2010 when the Service will field the first FCS-equipped unit. What are the costs associated with accelerating these technologies, and are they funded in the fiscal year 2005 budget request? How will this effect the FCS program?

Mr. BOLTON and General CASEY. Our materiel acquisition leadership understand the need to accelerate FCS and other future force technologies quickly into the current force to improve overall capabilities now rather than waiting until 2010. As such, on a case-by-case basis, we do intend to look at the capability gaps that are emerging from current operations and take steps, where possible, to take FCS developing technologies and platforms and insert them where they, in fact, could fill these capability gaps early. Currently, because we are still in the process of identifying those FCS technologies and systems with the most potential for acceleration, we have not yet developed specific acceleration costs. As a result, these costs could not

be included in the fiscal year 2005 budget request. Once technologies are identified for acceleration, we will take a holistic approach to determining what adjustments may need to be made to the FCS Program or other Army development programs to both accelerate designated technology and platform maturation as well as the fielding of these capabilities early to the current force.

15. Senator SESSIONS and Senator LIEBERMAN. Secretary Bolton, General Casey, and General Curran, we understand that the Army and the LSI are currently conducting trade studies for the final design of the FCS. When does the Army intend to make the final decision regarding these trade studies and at what point do these decisions impact the program schedule?

Mr. BOLTON and General CASEY. Trades have been scheduled and prioritized based on need to support program decisions. Objective 3 is to have all identified trades completed by Preliminary Design Review (April 2005); some which do not have significant design implications could stretch slightly beyond.

General CURRAN. The Army and LSI are not conducting assessments of "final designs" at this time. We continue collaborating on design concepts leading to a few long-lead decisions needed by the Army, and to produce threshold design concepts for use at the design concept review to be conducted this summer. The Training and Doctrine Command (TRADOC) is an active participant and on track to support this effort and all associated technical and program reviews. The Department of Defense acquisition philosophy and FCS program describe a consistent and continuous definition of requirements. The FCS program is using the Joint Requirements Oversight Council-approved Operational Requirements Document (ORD) as the baseline for requirements. We are now updating the document based upon thresholds that were collaboratively developed by the Program Manager and LSI. Trade-off analysis and studies and trade-off determinations will influence the feasibility of these requirements thresholds. Future updates and the continued refinement of requirements will be timed to support key program milestones such as the Preliminary Design Review next year; the Design Readiness Review (Critical Design Review), in 2006; and the Initial Production Decision (IPD), 2008. "Lock-in" of requirements occurs at IPD with the capabilities production document (CPD) for the production of systems for the first FCS-equipped unit of action.

STRYKER

16. Senator SESSIONS and Senator LIEBERMAN. Secretary Bolton and General Casey, last year there was some doubt surrounding the Department's support for the Stryker Brigade Combat Teams (SBCT) 5 and 6. However, the Secretary of Defense recently approved an Army plan which enhances the aviation, fire support, computer networks, and sensor capabilities of SBCTs 5 and 6, and retrofits brigades 1 through 4 with newer technology as it becomes available. Are these enhancements funded in the fiscal year 2005 budget request and the FYDP? What is the cost? If not, how does the Army intend to fund these enhancements?

Mr. BOLTON. The Army's enhancements for SBCT 5 and 6 are designed to make the brigade more combined arms capable and joint interoperable. Sensors and shooters are key. Enhancements will augment capabilities in the areas of aviation, fires, network communications, and sensors. For aviation, the Army's original proposal was to field a package of 12 Comanche helicopters to SBCT 5. With the recent cancellation of the Comanche program, the aviation addition to the SBCT enhancements is being revisited. In the area of fires, the Army is fielding the Lightweight (LW) 155 mm howitzer to SBCT 5 in fiscal year 2006, SBCTs 1-4 in fiscal year 2008, and SBCT 6 in fiscal year 2009. The LW 155 provides a lighter, more deployable, more mobile, more responsive, self-locating, digital firing platform that will fire precision munitions (Excalibur). Network communications enhancements include the fielding of Secure Mobile Anti-Jam Reliable Tactical Terminal (SMART-T) Satellite Communications terminals to each SBCT between fiscal year 2005 and fiscal year 2007, 53 Tactical Operations Centers (TOC) to TOC JTRS for each SBCT that will be fielded between fiscal year 2007 and fiscal year 2009, and the single Shelter Switch Base Band Node (SSS-BBN), Wide Area Network (WAN) that will be fielded to SBCTs 5 and 6 in fiscal year 2006 and fiscal year 2007. The research, development, test, and evaluation (RDT&E) and initial procurement for a 10-meter sensor mast for the brigade were also added. The mounted mast increases the SBCT's capability for target acquisition and identification from concealed positions. On December 8, 2003, the acting Secretary of the Army, Chief of Staff of the Army, and the Deputy Chief of Staff, G-8, briefed the Secretary of Defense on the Army's proposed enhancements for SBCTs 5 and 6 as described above. The Secretary of De-

fense approved the Army's plan for the enhancement of the 5th and 6th SBCTs and authorized the Army to spend fiscal year 2004 funds on these brigades.

The cost of these enhancements of SBCT 5 and 6 are fully funded as described in POM for fiscal years 0205-09. The retrofits of SBCT 1-4 are also funded for LW 155, SMART-T, and JTRS. The SSS-BBN and mounted mast enhancements for SBCTs 1-4 are being addressed in POM 06-11.

General CASEY. The Army's enhancements for SBCT 5 and 6 are designed to make the brigade more combined arms capable and joint interoperable. Sensors and shooters are key. Enhancements will augment capabilities in the areas of aviation, fires, network communications, and sensors. For aviation, the Army's original proposal was to field a package of 12 Comanche helicopters to SBCT 5. With the recent cancellation of the Comanche program, the aviation addition to the SBCT enhancements is being revisited. In the area of fires, the Army is fielding the LW 155mm howitzer to SBCT 5 in fiscal year 2006, SBCTs 1-4 in fiscal year 2008, and SBCT 6 in fiscal year 2009. The LW 155 provides a lighter, more deployable, more mobile, more responsive, self-locating, digital firing platform that will fire precision munitions (Excalibur). Network communications enhancements include the fielding of five SMART-T Satellite Communications terminals to each SBCT between fiscal year 2005 and fiscal year 2007, 53 TOC (Tactical Operations Center) to TOC JTRS for each SBCT that will be fielded between fiscal year 2007 and fiscal year 2009, and the SSS-BBN, WAN that will be fielded to SBCTs 5 and 6 in fiscal year 2006 and fiscal year 2007. The RDT&E and initial procurement for a 10-meter sensor mast for the brigade were also added. The mounted mast increases the SBCT's capability for target acquisition and identification from concealed positions. On December 8, 2003, the Acting Secretary of the Army, Chief of Staff of the Army, and the Deputy Chief of Staff, G-8, briefed the Secretary of Defense on the Army's proposed enhancements for SBCTs 5 and 6 as described above. The Secretary of Defense approved the Army's plan for the enhancement of the 5th and 6th SBCTs and authorized the Army to spend fiscal year 2004 funds on these brigades.

The cost of these enhancements of SBCT 5 and 6 and the retrofit of SBCT 1 thru 4 is \$962 million.

All of the enhancements for SBCTs 5 and 6 are fully funded as described in the POM for fiscal years 2005-2009. The retrofits of SBCT 1-4 are also funded for LW 155, SMART-T, and JTRS. The SSS-BBN and mounted mast enhancements for SBCTs 1-4 are being addressed in POM 06-11.

MOBILE GUN SYSTEM

17. Senator SESSIONS and Senator LIEBERMAN. Secretary Bolton and General Casey, we understand the Army has procured almost half of its Stryker vehicles under a low-rate production contract and will make a full-rate production decision this spring for the infantry combat vehicle variant. The Mobile Gun System (MGS) variant is currently in testing. Can you provide us with an update on the current status of MGS testing and whether the MGS will meet the Army requirement?

Mr. BOLTON and General CASEY. MGS testing is currently on track to support a low rate initial production decision by September of this year. The limited user test we had planned to conduct in September 2003 was postponed because of user concerns with system performance. We have since rectified these issues, with the exception of auto-loader reliability, which we expect to finish and demonstrate this week. Following the correction of these issues, the MGS successfully completed the first of a two-part force development exercise, which consisted of a live-fire exercise at Fort Lewis, Washington, in January. The next part is a force-on-force exercise scheduled for the end of this month at Fort Polk, Louisiana. We expect the MGS to perform well in this exercise. In addition, production qualification testing is over 50 percent complete and is ongoing at Aberdeen Proving Grounds, Maryland; and Yuma Proving Grounds, Arizona; as we speak. We expect to complete this testing in July 2004. To answer the second part of your question, the basic requirement for the MGS is to put a hole in a concrete wall through which infantry can pass. The MGS has shown that it can do this.

18. Senator SESSIONS and Senator LIEBERMAN. General Curran, has the Army explored alternatives that would meet the requirements for MGS should the platform fail testing?

General CURRAN. We continue to have full confidence in the MGS. However, an alternative that would meet the requirements for MGS, should the platform fail testing, is the use of an Anti-Tank Guided Missile (ATGM) variant with a Tube-Launched, Optically-tracked, Wire guided (TOW) missile with bunker busting muni-

tion. This ATGM variant is currently in use in Operation Iraqi Freedom and proving to show some measure of success against the aforementioned target types. Additional analysis will be needed to refine this alternative should the need arise.

LESSONS LEARNED FROM OPERATION IRAQI FREEDOM

19. Senator SESSIONS and Senator LIEBERMAN. General Curran, the deployment of the first SBCT in northern Iraq not only provides a unique capability for the Central Command but also provides the Army with an opportunity to test both near- and far-term operational concepts. Can you give us a sense of how lessons learned from Operation Iraqi Freedom (OIF) are influencing near- and far-term operational capabilities and requirements for SBCTs?

General CURRAN. The Stryker has demonstrated its ability to be a highly reliable combat vehicle. It has been able to rapidly reach its destination and deliver soldiers rested and able to execute dismounted operations. With the organic equipment issued in the SBCT it is capable of interacting with all Army forces. Additionally, the SBCT in Iraq has been asked to cover an area of 450km x 150km which exceeds the expected doctrinal distance of 100km x 100km. Accordingly, this increase in battle-space has created a communication connectivity challenge. The planned enhancements/retrofits aligned with networks and sensors will focus on improving command, control, and communications thus, mitigating this challenge in the far-term.

We continue to analyze the organizational construct to glean lessons to be spiraled either into other current force units, or into the future force. Examples include positive impacts of robust reconnaissance assets and increased situational awareness at lower tactical levels. We are also looking hard, from a Stryker platform perspective, at metrics such as the operational readiness rate and the mean miles between failure because of the unit's high operational tempo. Additionally, insights drawn from Operation Iraqi Freedom provide anecdotal underpinnings and support for many Future Combat System-equipped unit of action concepts and requirements such as Blue Force Tracking. Improvements will continue to be made based upon what we learn and will be applied accordingly to current or future force designs.

20. Senator SESSIONS and Senator LIEBERMAN. General Curran, how will these same lessons learned inform the design of the FCS-equipped unit of action?

General CURRAN. The Army maintains an in-theater presence through the Center for Army Lessons Learned to capture lessons learned. Additionally, through interface with many stakeholders, including U.S. Central Command, we are able to draw insights from both Operation Enduring Freedom and Operation Iraqi Freedom. So far, the lessons learned have served to anecdotally underpin or support many future force unit of action and FCS concepts and requirements. Additionally, lessons learned have also influenced some refinement of concepts and requirements such as how to detect and neutralize improvised explosive devices, and our approach to mine detection concepts and requirements.

Within the Training and Doctrine Command, the Futures Center, Unit of Action Maneuver Battle Lab, and others are reviewing lessons learned for application to concepts, Operational and Organizational plans, requirements documents, and operational architectures that support the unit of action integrated processes to identify gaps in concepts and requirements. Lessons learned have already informed the design of the future force and will continue to be examined for application to the future force.

RESURRECTION OF PROGRAMS

21. Senator SESSIONS and Senator LIEBERMAN. Secretary Bolton and General Casey, last year the Army cancelled 24 systems and restructured another 24 more in order to fund Army transformation. With the Army at war, new Army leadership has decided that the cancellation of programs in the current force had gone too far in some instances and has chosen to resurrect some of those programs. Chief among these is the M1A2 System Enhancement Program (SEP) tank. Are there other programs that the Army is also considering resurrecting?

Mr. BOLTON and General CASEY. No. The Army is not considering further ground system modernization/recapitalization beyond 3rd Armored Cavalry Regiment (3ACR) modernization efforts.

The Army is currently executing affordable Abrams Tank and Bradley Fighting Vehicle (BFV) programs that provide selected armored forces within the Counter-attack (CATK) Corps (4th Infantry Division, 1st Cavalry Division, and 3ACR) with superior technology and a digitally enhanced warfighting capability. Most recently,

the Army decided to continue recapitalization of the Abrams Tank in support of the 3ACR modernization. 4ID and 1CD will be equipped with M2/2A3 BFV, while 3ACR will be equipped with the M2/3A2 OIF BFV configuration. Procurement funding supporting 3ACR modernization is fiscal year 2004 through fiscal year 2006. MIA2SEP and M2/3A2 OIF fielding for 3ACR will occur in 1QFY2006 through 2QFY2007.

22. Senator SESSIONS and Senator LIEBERMAN. Secretary Bolton and General Casey, how does the Army intend to solve the combat identification problem to prevent or minimize fratricides?

Mr. BOLTON and General CASEY. We have fielded thousands of quick fix combat identification devices to the deployed forces supporting Operation Iraqi Freedom/Operation Enduring Freedom (OIF/OEF), and we continue to work hard in the development of more advanced combat identification solutions. One of our primary concerns is the capability of solutions to work in a joint, multifaceted operational environment (ground-to-ground, air-to-ground, ground-to-air, and air-to-air). We recently conducted a three-star general officer level Army/Marine Corps board including participants from all Services to review combat identification. Based on their recommendations, we are beginning a joint effort with the Marine Corps to determine the best solution set and investment strategy for the future combat identification needs of both Services. Our view continues to be that the cornerstone of an effective combat identification solution is a combination of improved situational awareness and target identification. Technology is important. We are making significant investments in combat identification in the technology base, but other elements, such as doctrine, training, tactics, techniques and procedures, organizations, and leadership are also important pieces. The joint effort we have undertaken with the Marine Corps will consider all of these elements. Regarding OIF/OEF, we have redirected significant funding from other Army programs over the past two years to provide thermal and infrared combat identification devices to forces in Iraq and Afghanistan. These devices enable forces equipped with forward-looking infrared (FLIR) and night vision devices to identify other friendly forces. Our budget request includes funding to continue fielding these devices to new force rotations deploying to the Iraq and Afghanistan theaters. We are also leveraging the combat identification capabilities of digitized systems and improved optical systems. We have integrated the Force XXI Battle Command Brigade and Below system with satellite-based blue force tracking to provide situational awareness information for key leaders in Army, Marine Corps, and coalition ground units in Iraq and Afghanistan. Fratricide prevention training has been ingrained into institutional, individual, and collective unit level training environments. To sharpen soldier visual identification skills, we have issued an interactive vehicle-recognition training device called Recognition of Combat Vehicles (ROC-V). ROC-V is a computer-based training system that soldiers may use to improve on individual vehicle identification skills. We consistently upgrade and expand the library of vehicle images in ROC-V. The fielding of improved optical systems that incorporate advanced FLIR technology, such as Second Generation FLIR, Long Range Advanced Scout Surveillance System (LRAS3), and Thermal Weapon Sights (TWS) enable soldiers to detect and visually identify ground targets with greater fidelity and at greater ranges than was ever possible in the past. We will continue to give this problem the highest priority until we have the right set of solutions in the hands of soldiers.

23. Senator SESSIONS and Senator LIEBERMAN. Secretary Bolton and General Casey, will the Army resurrect the Battlefield Combat Identification System program that the Army cancelled in prior years?

Mr. BOLTON and General CASEY. The Army does not plan to resurrect the Battlefield Combat Identification System (BCIS) program. The BCIS program was cancelled primarily due to affordability concerns associated with the following factors: cost of the basic hardware (B-Kit); cost to integrate the system on vehicles (A-Kit), particularly the Abrams and Bradley; and the large number of vehicles we would have to equip to ensure that the system would be effective from an operational standpoint. While we have no plans to resurrect the BCIS program, we continue to have interest in the millimeter wave technology that was developed in the BCIS program, and continue to pursue a millimeter wave-based combat identification concept, along with other technology concepts, in the technology base. This millimeter wave technology base effort, called Battlefield Combat Identification Device (BTID), was initiated in 2001 prior to the cancellation of the BCIS program as part of a Coalition Combat Identification Advanced Concept Technology Demonstration (CCID ACTD). The CCID ACTD is focused on developing combat identification solutions that are more affordable than BCIS and which are interoperable without NATO al-

lies. BTID prototypes are currently undergoing government technical testing in the CCID ACTD and will undergo operational demonstrations in fiscal year 2005 along side similar millimeter wave candidates developed by the United Kingdom and France. Our fiscal year 2005 budget request includes technology base funding required to support the United States share of the operational demonstrations, as well as research, development, test, and evaluation funding to support cost-reduction efforts on BTID. Results from the operational demonstrations will be used by the Joint Forces Command to render joint military utility assessments on each nation's system. The assessments will assist in the Army's determination of any future efforts on BTID.

24. Senator SESSIONS and Senator LIEBERMAN. Secretary Bolton and General Casey, does the Army intend to continue to limit recapitalization and selective modernization of equipment to two divisions and the armored cavalry regiment of the counterattack corps or will that program be extended to the rest of the force?

Mr. BOLTON and General CASEY. Yes. The Army continues to limit recapitalization and selected modernization efforts. The Army is not considered further ground system modernization/recapitalization beyond the already identified two division and the 3ACR modernization efforts.

Most recently, the Army decided to continue recapitalization of the Abrams Tank in support of 3ACR modernization. 3ACR will be equipped with the M1A2 SEP tank commensurate with the 1st Cavalry Division (1CD) and 4th Infantry Division (4ID). 4ID and 1CD will be equipped with the M2/3A2 Operation Iraqi Freedom BFV configuration. Procurement funding supporting 3ACR modernization is fiscal year 2004 through fiscal year 2006. M1A2 SEP and M2/3A2 OIF fielding for 3ACR will occur in the first quarter fiscal year 2006 through the second quarter fiscal year 2007.

CURRENT AND FUTURE ARMY REQUIREMENTS AND PRIORITIES

25. Senator SESSIONS and Senator LIEBERMAN. Secretary Bolton, General Casey, and General Curran, in your professional judgment, does the Army's current requirements determination and prioritization process meet the needs of the Army? If not, how do you intend to address your concerns?

Mr. BOLTON and General CASEY. Yes, the Army develops and prioritizes its warfighting requirements utilizing the processes outlined in the Joint Capabilities Integration and Development System. The Army's requirements determination process will provide a current and future army capable of success in any contingency from humanitarian assistance to full tactical operations in joint and combined environments. The Army's process will be responsive to the urgent material requirements of the deployed warfighter, as well as project the full set of doctrine, training, leader development, organizational, material, and soldier requirements for the Army to be mission capable in current and future operations.

General CURRAN. Yes, it does. Within the TRADOC, the Army Futures Center will lead the Army in developing all aspects of doctrine, organization, training, materiel, leadership and education, personnel, and facilities (DOTMLPF) solutions to meet the requirements of a modularized Army.

To fully realize the contribution of Army capabilities to the joint fight, we now work through the Joint Capabilities and Integration and Development System (JCIDS) to articulate Army capability requirements. JCIDS is the top-down process involving functionally-focused teams centered on developing required capabilities and effects rather than systems. TRADOC executes the JCIDS process by analyzing Army warfighting concepts derived from strategic guidance, the Joint Operations Concept and subordinate joint operating, functional, and integrating concepts. These concepts describe how the future force will operate, the conditions and environment in which it must operate, its required capabilities in terms of missions and effects, and its defining physical and operational characteristics. We analyze these required capabilities to isolate the tasks, conditions and standards that the force must perform. We assess these tasks to determine gaps in capability that pose sufficient operational risk to constitute a capability need requiring a solution.

Our challenge is to identify desired warfighting capabilities and balance the application of resources between current modernization and the future force. Through the Futures Center we develop a broadly based integrated vision of future requirements, both Army and joint. We integrate the development of Army and joint doctrine for needed capabilities, and support the Army in resource development and in the acquiring the DOTMLPF means of producing capabilities. Current and future combatant commanders require that these capability and prioritization decisions be made

in a joint context, informed by our Nation's goals and objectives. The Department of Defense, with the Army in full support, continues to fine tune the planning and programming processes so that prioritization decisions support both current and future operations, and most importantly, in a joint context. We are aggressively seeking analysis, backed with the best joint experimentation, combined with threat assessments to drive our decisionmaking processes.

26. Senator SESSIONS and Senator LIEBERMAN. Secretary Bolton, General Casey, and General Curran, what impact have the lessons learned from Operations Enduring Freedom and Iraqi Freedom had on near- and far-term requirements?

Mr. BOLTON and General CASEY. The Army has systematically captured all emerging requirements from OIF/OEF operations and is currently analyzing them across all Doctrine, Training, Leader Development, Organizational, Material, and Soldier (DTLOMS) domains. All requirements will be operationally based, and joint capabilities focused, as they are developed to support the combatant commander's operational capabilities gaps. A material requirement will only be developed for a capability gap only after all DTLOMS solutions are deemed unable to solve the required capability.

General CURRAN. The Army maintains an in-theater presence through the Center for Army Lessons Learned to capture lessons learned. Additionally, through interface with many stakeholders, including U.S. Central Command, we are able to draw insights from both Operation Enduring Freedom and Operation Iraqi Freedom. The SBCT provides a good example of the impact of lessons learned. The Stryker has demonstrated its ability to be a highly reliable combat vehicle. It has been able to rapidly reach its destination and deliver soldiers rested and able to execute dismounted operations. With the organic equipment issued in the SBCT it is capable of interacting with all Army forces. Additionally, the SBCT can conduct information and voice information exchange with other services command, control, communications, computers, intelligence, surveillance, and reconnaissance (C⁴ISR) equipment at varying levels depending on distance.

We continue to analyze the SBCT organizational construct to glean lessons to be spiraled either into other current force units, or into the future force. Examples include positive impacts of robust reconnaissance assets and increased situational awareness at lower tactical levels. We are also looking hard, from a Stryker platform perspective, at metrics such as the operational readiness rate and the mean miles between failure because of the unit's high operation tempo. Finally, insights drawn from Operation Iraqi Freedom provide anecdotal underpinnings and support for many Future Combat System-equipped Unit of Action concepts and requirements such as Blue Force Tracking. Improvements will continue to be made based upon what we learn and will be applied accordingly to current or future force designs.

So far, the lessons learned have served to anecdotally underpin or support many future force UA and FCS concepts and requirements. Additionally, lessons learned have also influenced some refinement of future force concepts and requirements such as how to detect and neutralize improvised explosive devices, and our approach to mine detection concepts and requirements.

Within the Army Training and Doctrine Command, the Futures Center, Unit of Action Maneuver Battle Lab, and others are reviewing lessons learned for application to concepts, operational and organizational plans, requirements documents, and operational architectures to identify gaps in concepts and requirements. Lessons learned have already informed the design of the future force and will continue to be examined for application to the future force.

27. Senator SESSIONS and Senator LIEBERMAN. Secretary Bolton, General Casey, and General Curran, have these lessons learned had an impact on Army priorities?

Mr. BOLTON and General CASEY. Certainly, Since September 11, 2001, the Army's top priority has been to win the global war on terrorism. The experiences from the last 2½ years have refined specific priorities, to which the Army has responded. As we prepared for Operation Iraqi Freedom, the Army established priorities for supplemental funding to address urgent operational needs, such as Interceptor Body Armor, the Rapid Fielding Initiative, and Blue Force Tracking. Since then, our focus has shifted to the stabilization effort in Iraq and force protection, such as Unarmored High Mobility Multi-Wheeled Vehicles, Aviation Survivability Equipment, and Add-on Ballistic Vehicle Armor. In each of these areas, the Army has adjusted its priorities within its base budget to expand and accelerate fielding of these key programs. Major high priority initiatives captured in the Army Focus Areas—the Soldier, Modularity, Active Component Rebalance, and Force Stabilization-Zero provide the changes necessary for the Army to successfully execute the global war

on terrorism while ensuring our ability to provide the commanders of tomorrow with Joint and Expeditionary Forces with campaign qualities.

General CURRAN. Yes. Generating more combat power, and thereby increasing rotational forces, is the Army's top priority. The lessons learned from recent and ongoing operations highlight the need to address this priority. Accordingly, the Army is creating modular brigade sized organizations to increase combat power and move us in the direction of Future Combat Systems equipped units of action. The Army is also implementing lessons learned to improve the training and design of future Army Aviation forces.

Lesson learned encouraged us to reinvigorate training to ensure all soldiers embrace the warrior ethos. Lesson learned informed the rebalancing of Active and Reserve Forces to enhance the capabilities of both. Lessons learned are helping us to reset the force in order to best prepare for the future during this time of dynamic activity and change. Lesson learned guide us in our continuous improvement of leader development and education systems to better train, educate and grow leaders that are the centerpiece of a joint and expeditionary Army with campaign capabilities. Finally, lessons learned from OEF and OIF have highlighted both opportunities and needs for enhancing current forces while providing insights for future force development.

QUESTIONS SUBMITTED BY SENATOR JAMES M. INHOFE

END STRENGTH

28. Senator INHOFE. General Casey, a lot of controversy has surrounded the discussion of adequate end strength. As I understand the proposal from the administration, you plan to dramatically reorganize the Army while fighting this global war and do all of it with a temporary increase of up to 30,000 active duty soldiers. You plan to convert up to 10,000 soldier jobs to civilian jobs and you plan to pay for all of this with supplemental funding, which is never assured until it is passed. I am concerned that we are trying to do too much with too few resources. I have been told by several leaders in the Pentagon during my time in Congress that underfunding defense is easier to deal with than volatile up and down funding that leads to wasted money over time. Are we setting the Army up for this unsure, volatile funding by relying on supplementals to pay for reorganization and temporary troop increases?

General CASEY. The increase in authorized end strength is directly related to the global war on terrorism and is being made under emergency authority. Because the increase is temporary, we believe the supplemental appropriations are a proper funding approach. We are funding the military to civilian conversions from the base budget. We understand that we are taking on a lot and that there is potential for volatile funding conditions, but we cannot afford not to undertake these efforts now. The temporary increase and military to civilian conversions give us the flexibility to reorganize our combat formations. They are essential to our efforts to win the global war on terror and provide the combat ready ground force that the joint team needs.

29. Senator INHOFE. General Casey, how confident are you in the accuracy of the cost estimates you project for the reset and reorganization of your forces? Are we going to see you cut modernization programs to pay for this reorganization over time if you get the cost estimates wrong?

General CASEY. The Army Staff, commanders in the field, and our training and doctrine community are working hard to get this right. We are fairly confident in our estimates and are continually fine-tuning them as plans evolve. We plan to use supplemental funding to pay for this effort to the degree it is related to the global war on terrorism. Clearly, reset is part of that effort. Reorganizing these units at the same time makes good fiscal sense and prepares them for any future missions for which we need them. We're constantly balancing the needs of the current force with the future. Modernization programs are key to our future force, and we do not intend to cut them.

FORCE STRUCTURE

30. Senator INHOFE. General Casey, as part of your plan to restructure the Guard and Reserve you are going to reduce the force structure and keep the end strength. This sounds like a good plan. Do you plan to keep the Reserves fielded with the

latest equipment under this new plan so that we do not create a have and have not situation?

General CASEY. The Army has maintained a high operational tempo because we are a fully engaged, ready, relevant, and reliable force supporting the Nation's global war on terrorism. Since recent world events indicate that the Army will continue to be engaged in and support a wide variety of contingency operations, equipment modernization and sustainment efforts must be a high priority in order to continue to successfully meet the full spectrum of operations. The Army's Reserve components provide essential support and critical expansion capability to enable the Army to sustain itself over any duration across the full spectrum of military operations. The increased operational tempo throughout all Army components and the limited new equipment procurement funding requires that the Army prioritize new equipment procurement to best meet the current and emerging world threats. Balanced modernization is part of the overall strategy for weighing current requirements against the need to transform continually to meet the changing world threats. It is critical that new equipment programmed for the Army Reserve is procured and distributed as planned. New equipment procurement funding is limited, but the Army will continue to equip and modernize its Reserve components along a timeline that ensures equipment remains interoperable and compatible with the active component and to keep pace with the Army's ongoing transformation efforts through new equipment procurements, the redistribution of equipment from the active component, and the recapitalization or rebuilding existing systems.

FUTURE COMBAT SYSTEM

31. Senator INHOFE. General Curran, during my trip to California last week I saw your plans for the FCS. I am very impressed with the direction the Army is headed. My only concern is with survivability. How do you plan to provide adequate protection of soldiers in support vehicles in this new system?

General CURRAN. Survivability of FCS is framed in the FCS Survivability key performance parameter (KPP) as a holistic approach that includes, but is much broader than ballistic protection. The KPP approved by the Joint Requirements Oversight Council states:

Increment 1: The FCS Family of Systems (FoS) must provide essential protection to mounted and dismounted soldiers through the best combination of ground and air systems. Rationale: FCS-equipped unit of action characteristics of tactical dispersion and rapid offensive maneuver demand superior FCS FoS survivability against lethal and non-lethal threats. Integrated survivability of the FCS FoS must provide essential protection to soldiers while they perform their mission of seeing first, understanding first, acting first, and finishing decisively. Soldiers and leaders must be able to see themselves, the enemy, and the environment. The holistic system of systems survivability concept uses active and passive capabilities to see the enemy, maneuver out of contact, and destroy the enemy at extended ranges or in close contact. Cornerstone enabling capabilities include networked battle command, integration of signature management, active and passive protection systems, Land Warrior, early and long-range acquisition and targeting, network lethality, obscurants, dash speed and degradation of enemy detection and targeting.

The focus is on protection of soldiers through active and passive capabilities. The holistic system of systems survivability concept uses active and passive capabilities to provide manned FCS crews as much, if not more, protection than current systems with the exception the passive defense capabilities of the M1 Abrams tank; however, the M1 is not invulnerable, either. The FCS ORD and the FCS Program system-of-systems specifications include specific thresholds for Manned Ground Vehicle (MGV) ballistic threats. Each FCS manned system must provide a best combination of detection avoidance, target acquisition avoidance, hit avoidance, ballistic protection, and kill avoidance. Specific metrics include protecting crews and passengers from life-threatening incapacitation resulting from: 14.5mm; 30 mm against frontal 60-degree arc; rocket-propelled grenade (RPG); ATGM; and high-explosive/high-explosive anti-tank (HE/HEAT), as a threshold capability, and kinetic energy (KE) effects, as an objective capability.

32. Senator INHOFE. General Curran, the combat vehicles like Non-Line-of-Sight Cannon (NLOS-C) have what seems to be adequate armor protection but the resupply vehicles that bring the beans and bullets to the front line don't. Why?

General CURRAN. The future joint operational environment will be non-contiguous and have no "front lines." Essential to the survivability of our forces will be superior situational awareness and decisionmaking, based on advanced C⁴ISR capabilities

embedded at all levels. Blue Force Tracking during Operation Iraqi Freedom provides a glimpse of the power of a networked force.

Survivability is much broader than ballistic protection; the focus is on protection of all soldiers, including those who “bring the beans and bullets.” Adequate armor protection is only one part of survivability. Extensive, passive, heavy armament protection of all manned platforms is neither feasible nor affordable for a balanced, effective force. The Army has been and will remain a hybrid force with a mix of platforms for maneuver and support forces and protection for each will be addressed. The design of future forces consists of a careful balance of transportability, lethality, interoperability and survivability.

The FCS remains the material centerpiece of the Army’s future force commitment and will reduce the presence of soldiers required to perform sustainment functions. However, even if FCS meets all expectations, we will remain a hybrid force for the foreseeable future, and we continue to seek ways to improve all of the platforms we will operate. What we seek in the future is to prevent the past disparity in protection between vehicles designed for combat and those intended for support. Solutions will exist across the doctrine, organizations, training, material, leadership and education, personnel and facilities.

Throughout, soldiers will remain the centerpiece of our formations. Embedding the warrior ethos during initial military training is an example of a non-material solution to improve soldier protection. The effects of changes in organizations, material, doctrine and facilities are additive. Those of training are multiplicative. Those of leadership are exponential. Simultaneous consideration of current and future requirements will be the integrating mechanism in all our change processes. Change is already underway at the Combat Training Centers (CTC). In very short order, the threat environment has been transformed to reflect the complexity and ambiguity experienced by our deployed forces, not only at the Joint Readiness Training Center, but also at the National Training Center.

NON-LINE-OF-SIGHT CANNON

33. Senator INHOFE. General Casey, after the cancellation of Crusader in 2002, Congress passed a law that required the fielding of an NLOS-C system no later than 2008. Plans that I have seen do not field a cannon in the traditional sense of fielding by 2008. They show a pre-production model being produced in 2007 as part of a prototype unit.

But neither the current budget for fiscal year 2004 nor the President’s budget request for fiscal year 2005 seems to fund this strategy. The current acquisition contract has no provisions in it to produce such a unit. I am told that a letter recently sent to Congress asks the committees to consider the production of a prototype to be the “fielding” mandated by law. The current program plan, contract, and funding seem inconsistent with each other and the law.

It seems to me that asking the committees to change what the law means by “fielding” is counterproductive and will only delay the program. Shouldn’t the Army be devoting its resources to resolving the technical issues and actually complying with the law, rather than trying to change what the law means?

General CASEY. The objective of the FCS program is to field an integrated combat capability at the unit level as opposed to developing individual systems. Central to this approach is the integrated development and acquisition of sensors, unmanned air and ground systems, and manned combat systems working together and connected by a network that provides increased combat effectiveness. The Army and the entire FCS development team are engaged in executing the integrated schedule and work plan that will achieve the objective of fielding transformational integrated capabilities in the shortest possible time.

34. Senator INHOFE. General Casey, why aren’t the resources needed to do this included in the President’s budget for fiscal year 2005?

General CASEY. The NLOS-C is an integral and vitally important part of FCS. Accordingly we have made it the lead system of the FCS family of manned ground vehicles. It is the Army’s position that embedding NLOS-C funding within the overall FCS program as approved by Congress in the fiscal year 2004 budget, enables the FCS system-of-systems approach. This plan includes completing requirements and functional reviews in 2004, completing preliminary design in 2005 and pre-production design in 2006, leading to assembly and delivery of the initial pre-production NLOS-C in fiscal year 2007. The Army’s three primary manned ground vehicle industry partners for FCS—Boeing, General Dynamics, and United Defense—support this approach.

The NLOS-C funding profile, to include fiscal year 2005, is in accordance with the above strategy. Again, if this approach is not acceptable to Congress, the Army's only recourse is to seek congressional relief from the law.

35. Senator INHOFE. General Casey, is there a way to satisfy the requirements of the law in regard to this stage of the program without changing what the law means?

General CASEY. No. To separate NLOS-C from the overall FCS development, at this time, would be detrimental to the complex integration effort so critical to the success of the FCS program. The NLOS-C design would not be compatible with the integrated architectures, to include sustainment, developed specifically for the unit of action. In order to fully field a system in the traditional sense would cause the creation of a new cannon program.

36. Senator INHOFE. General Casey, what are your plans for the funding stream for the NLOS-C?

General CASEY. The funding stream necessary to support development of the NLOS-C as part of FCS system-of-systems development effort within the FCS development and demonstration phase is in accordance with the fiscal year 2005 President's budget.

STRYKER BRIGADES

37. Senator INHOFE. General Curran, I am going to Iraq to see the Stryker brigade. I supported the development of the system. However, I have been concerned that the brigade does not have a self-propelled artillery piece. The system in place is towed while the rest of Stryker is self-propelled.

Before Secretary Rumsfeld would support the last two Stryker brigades he challenged the Army to go back and enhance the capability for the 5th and 6th Brigades. The Army submitted a report that included Comanche as one of the proposed enhancements. With Comanche gone, it seems the addition of a self-propelled artillery system would be a capability. Is there a plan to provide an upgrade in capability to the Stryker brigade?

General CURRAN. Planned enhancements to the Stryker brigades will incorporate still-developing technologies in the areas of aviation, fires, network communications, and sensors. The first enhancement will be to the communications networking in order to enhance satellite communications by offering high-speed compatibility and interoperability with the joint forces. Another enhancement will be to improve sensor capabilities within the Stryker brigade by adding 10-meter masts on Stryker vehicles. The masts will allow soldiers to employ the sensor system from a concealed position and identify targets up to 10 kilometers away. The next generation enhancements to communications and sensors will improve soldiers' abilities to conduct command and control, communications, logistics, target acquisition and intelligence.

Further, Stryker brigades 1 through 4 will each have 12 M-198 155mm howitzers. Army's current plan is that Stryker brigades 5 and 6 will be enhanced with 18 of the new lightweight 155mm howitzers followed by retrofits to SBCTs 1-4. The Army does not currently plan to provide a self-propelled howitzer capability within the Stryker brigades. Rotations for both Stryker brigades 1 and 2 to our National Training Center and Joint Readiness Training Center validated that the current in-lieufs (M198 howitzers) provide the necessary fires capability required for the Stryker brigades. Most important, the Army continues to review performance of the Stryker brigades in order to identify necessary enhancements, as evidenced by the decision to apply selected enhancements to brigades 5 and 6, then retrofit the fleet. We will continue to do so in the future.

38. Senator INHOFE. General Curran, which enhancements are funded and which enhancements are not funded?

General CURRAN. The Army's enhancements for SBCTs 5 & 6 are designed to make the brigade more combined arms capable and joint interoperable. Sensors and shooters are key. Enhancements will augment capabilities in the areas of aviation, fires, network communications, and sensors. For aviation, the Army's original proposal was to field a package of 12 Comanche helicopters to SBCT 5. With the recent cancellation of the Comanche program, the aviation addition to the SBCT enhancements is being revisited. In the area of fires, the Army is fielding the LW 155mm howitzer to SBCT 5 in fiscal year 2006, SBCTs 1-4 in fiscal year 2008, and SBCT 6 in fiscal year 2009. The LW 155 provides a lighter, more deployable, more mobile,

more responsive, self-locating, digital firing platform that will fire precision munitions. Network communications enhancements include the fielding of five SMART-T Satellite Communications terminals to each SBCT between fiscal year 2005 and fiscal year 2007, 53 TOCs to TOC JTRS for each SBCT that will be fielded between fiscal year 2007 and fiscal year 2009, and the SSS-BBN, WAN that will be fielded to SBCTs 5 and 6 in fiscal year 2006 and fiscal year 2007. The RDT&E and initial procurement for a 10-meter sensor mast for the brigade were also added. The mounted mast increases the SBCT's capability for target acquisition and identification from concealed positions. All of the enhancements for SBCTs 5 and 6 are fully funded as described in POM 2005-2009. The retrofits of SBCT 1-4 are also funded for LW 155, SMART-T, and JTRS. The SSS-BBN and mounted mast enhancements for SBCTs 1-4 are being addressed in POM 2006-2011. On 8 December 2003, the acting Secretary of the Army, Chief of Staff of the Army, and Army G-8 briefed the Secretary of Defense on the Army's proposed enhancements for SBCTs 5 and 6 as described above. The SECDEF approved the Army's plan for the enhancement of the 5th and 6th SBCTs, and authorized the Army to spend fiscal year 2004 funds on these brigades.

39. Senator INHOFE. General Curran, doesn't something like the NLOS-C make sense as part of the enhancement package? It would give more crew protection and a much smaller crew size as well as increased lethality. Why can't an early version of NLOS-C be part of that enhancement?

General CURRAN. Although the capabilities of the NLOS-C will be exceptional, and are appealing as a component of the Stryker brigade, fundamental to all our design efforts is the need to field effective systems of systems. The NLOS-C is an important component of the FCS and shares common FCS characteristics in areas such as communications and sustainment. The technical and support characteristics of the Stryker units are different than the characteristics of the NLOS-C system. Mixing the two types of systems, NLOS-C and Stryker, within one organization would reduce the capabilities of their respective families due to incompatibilities in force structure, sustainment, and communications. The Army would face significant demands on resources in order to redesign NLOS-C and Stryker platforms to make them compatible within their respective families of systems. In order to balance risk across the Army, early versions of NLOS-C will not be part of Stryker brigade enhancements.

[Whereupon, at 4:09 p.m., the subcommittee adjourned.]

**DEPARTMENT OF DEFENSE AUTHORIZATION
FOR APPROPRIATIONS FOR FISCAL YEAR
2005**

WEDNESDAY, MARCH 24, 2004

U.S. SENATE,
SUBCOMMITTEE ON AIRLAND,
COMMITTEE ON ARMED SERVICES,
Washington, DC.

NAVY AND AIR FORCE AVIATION PROGRAMS

The subcommittee met, pursuant to notice, at 2:03 p.m. in room SR-232A, Russell Senate Office Building, Senator Jeff Sessions (chairman of the subcommittee) presiding.

Committee members present: Senators Sessions, McCain, Chambliss, Lieberman, and Pryor.

Majority staff members present: Regina A. Dubey, research assistant; Ambrose R. Hock, professional staff member; and Thomas L. Mackenzie, professional staff member.

Minority staff members present: Daniel J. Cox, Jr., professional staff member; Creighton Greene, professional staff member; and Peter K. Levine, minority counsel.

Staff assistants present: Andrew W. Florell, Sara R. Mareno, and Bridget E. Ward.

Committee members' assistants present: Christopher J. Paul, assistant to Senator McCain; Arch Galloway II, assistant to Senator Sessions; Clyde A. Taylor IV, assistant to Senator Chambliss; Frederick M. Downey, assistant to Senator Lieberman; and Terri Glaze, assistant to Senator Pryor.

**OPENING STATEMENT OF SENATOR JEFF SESSIONS,
CHAIRMAN**

Senator SESSIONS. All right. We will commence our meeting, and we will have some other Senators join us before the subcommittee is concluded.

Today, the Airland Subcommittee meets to receive testimony from a distinguished panel of witnesses to discuss those aviation programs which this subcommittee has oversight responsibility. We are pleased to have John Young, the Assistant Secretary of Navy for Research Acquisition and Development; Dr. Marvin Sambur, the Assistant Secretary of the Air Force—we are glad you are here. Vice Admiral John Nathman, Deputy Chief of Naval Operations for Warfare Requirements—it is good to see you. Lieutenant General Michael Hough, the Deputy Commander of Marine Corps for Avia-

tion; and Lieutenant General Ronald Keys, the Deputy Chief of Staff of the Air Force for Air and Space Operations.

Thank you, gentlemen, for taking time out of your schedule to be with us. We do have an oversight function, and we need to talk about some of the significant programs that are ongoing.

Tactical aircraft from the Navy, Marine Corps, and Air Force have delivered spectacular performances in Operation Enduring Freedom (OEF) and Operation Iraqi Freedom (OIF). Air supremacy was never challenged in these operations, giving our ground forces freedom to maneuver, while also being able to call on our air assets to deliver precision-guided munitions (PGMs). These weapons have allowed our aircraft to stand off, beyond the range of lethal surface-to-air defenses. Instead of multiple aircraft being required to destroy a single target, now a single aircraft has the capability to destroy multiple targets.

I want to extend my sincere appreciation to the brave men and women who have flown these missions, and to all those who support them. In fact, we seek not just air superiority but air domination. It is key to our whole defense strategy, it seems to me, and I am glad that we will have the opportunity to discuss whether or not we can maintain that.

With the exception of the new F/A-18 Super Hornet, which first saw combat in Operation Iraqi Freedom, these missions were flown with legacy aircraft, most designed in the 1970s. New aircraft are in varying stages of development to replace these aircraft. The F/A-22 Raptor is in low-rate production and is preparing to begin its initial operational test and evaluation.

The Joint Strike Fighter (JSF) is in system design and development. Further on the horizon are the joint unmanned combat air systems (JUCAS), whose concepts are being explored by the Defense Advanced Research Projects Agency (DARPA). One of the capabilities that is key to enabling not only our tactical aircraft, but also our long-range strike and mobility aircraft, is the aerial refueling delivered by a fleet of tanker aircraft. The subcommittee is interested in hearing about the progress of our programs' production rates to restock our inventories of precision-guided weapons, and progress to capitalize our fleet of tanker aircraft.

In a hearing later this month, on March 30, the subcommittee will review the status of Army aviation programs. Last year, when this subcommittee received testimony, we were told the F/A-22 was going to begin its initial operational test and evaluation in October 2003. At that time, production deliveries of the aircraft were behind the contractual delivery dates by eight aircraft, and the aircraft was experiencing software stability problems. The JSF was starting its design reviews. The Navy and Air Force were on independent tracks in concept exploration for unmanned combat aerial vehicles (UCAVs). The subcommittee was aware that the Air Force was negotiating a proposal to lease KC-767 tanker aircraft, but no proposal had been submitted. So much has changed in this past year, and this hearing will be an opportunity to bring us up-to-date.

So thank you, again, gentlemen, for your service to your country. I have been thoroughly impressed with the intensity of interest, time, and effort everyone in the Defense Department has given to

supporting our men and women in uniform in combat. You are making incredible sacrifices, also, to make sure that those soldiers, sailors, airmen, and marines have the finest equipment as soon as possible.

I want to thank Senator Lieberman for his service as the ranking member on this subcommittee. He has a long history of dedicated service to the Senate. He has the respect of Senators on both sides of the aisle, and he is an expert and most knowledgeable on defense matters, and been most supportive of defense matters. It has just been a pleasure for me to work with him and to learn from him.

Senator Lieberman.

STATEMENT OF SENATOR JOSEPH I. LIEBERMAN

Senator LIEBERMAN. Thank you, Mr. Chairman, for your kind words. I wish you had had a vote in the Democratic presidential primaries. [Laughter.]

But getting back to the subject—

Senator SESSIONS. You are right about that.

Senator LIEBERMAN. Thank you. It has been a great honor to work with you, in truly bipartisan fashion, on this subcommittee to support our national security and the people who protect us every day.

I want to join you in expressing gratitude to the witnesses for being here today, but also, through them, to pay tribute to the extraordinary heroism, professionalism, and effectiveness of the coalition Armed Forces presently engaged in Iraq. All those who are serving our country in the Middle East right now really represent the bravest and the brightest that our country has to offer. It makes our future a lot safer and better than it would otherwise be.

It is against that backdrop of active duty, of continued bravery and exemplary performance, that you have convened this session, Mr. Chairman, of the Airland Subcommittee, to discuss the present and future of our aviation programs. It is an exciting and inspiring backdrop, indeed, and it does remind us every day, as I know it reminds those who are our witnesses today, of the importance of what we do. In this case, we have the honor and the opportunity in this subcommittee to begin, for the Senate and Congress, deliberation on matters that ultimately will result in lives saved, though that may be years down the road, in conflicts, some of which we can foresee today and others that are beyond our imagination. So this is important work that we are honored to be involved in.

To that end, I appreciate the opportunity to speak to, listen to, and ask some questions of the witnesses. I want to mention a few of the areas that I am interested in. Some overlap with what the chairman has said.

I do note, with dismay, that the testing of the F/A-22 Raptor has been delayed yet again. I have been a strong supporter of this program as long as I have been here in the Senate. Last year at this time, the Air Force was predicting that the program, which is so essential to our continued American air superiority, would start operational testing and evaluation in October of last year. Since that time, there have been continuing problems with the F-22 in two major areas. First, delayed aircraft deliveries have slowed the

progress of the development testing leading up to the initial operational test and evaluation. Second, problems with the aircraft's software have apparently proven harder to correct than anticipated. I want to hear from our witnesses today about how we are doing on both of those programs, and I hope that we will have some good news.

Third, I am troubled that the JSF may have hit a snag since last year. The concerns that were expressed at the comparable hearing about a potential weight problem apparently have become real, and I do want to talk about that. It is also not encouraging that we are only 2 years into the system development and demonstration phase of the program, and are presented with a cost increase that is estimated from \$33 billion to more than \$40 billion for development of the JSF. Such price inflation also usually means, unfortunately, that there will be increases in recurring production costs. In the threat environment we are operating in and the always constrained resource environment, we have to ask some important questions about that.

Whichever the case, I really would urge the Services and the contracting team to do everything it possibly can—I am speaking here of the JSF—to fix the problem now, in such a way that it will not create a bow wave of further complications as we approach delivery dates. Hasty weight-reduction fixes that I have seen in my time here have been responsible for substantial cost increases in other aircraft developments later in the programs. I do not think any of us want to see that history repeated in the JSF program, which really is a very exciting transformational airplane.

Was it Benjamin Franklin who said, "Haste makes waste?" But if not, it should have been. [Laughter.]

But the point is that we really need you to get this fixed now, and then go forward together to develop this extraordinary airplane.

Once again, I thank you, and I look forward to your testimony.

Thank you, Mr. Chairman.

Senator SESSIONS. Very good. We do have some questions to ask about those programs, and I thank you for those comments.

Let's see, I believe Secretary Young and Secretary Sambur, you were going to present the statements. If you would do that, then we will ask some questions.

STATEMENT OF JOHN J. YOUNG, JR., ASSISTANT SECRETARY OF THE NAVY FOR RESEARCH, DEVELOPMENT, AND ACQUISITION; ACCOMPANIED BY VADM JOHN B. NATHMAN, USN, DEPUTY CHIEF OF NAVAL OPERATIONS FOR WARFARE REQUIREMENTS AND PROGRAMS; AND LT. GEN. MICHAEL A. HOUGH, USMC, DEPUTY COMMANDANT FOR AVIATION, HEADQUARTERS

Mr. YOUNG. Mr. Chairman, Senator Lieberman, it is a great privilege to appear before the subcommittee to discuss the status of Navy and Marine Corps aviation programs and the fiscal year 2005 budget request. Admiral Nathman, the Deputy Chief of Naval Operations for Warfare Requirements and Programs, and Lieutenant General Hough, the Deputy Commandant for Aviation, are with me today on behalf of the Department of the Navy.

Your Navy and Marine Corps team, as you noted, has performed in an exceptional manner in Operations Enduring Freedom and Iraqi Freedom that, last year, underscored the high return on your investment in combat readiness, our people, and our unique maritime warfighting capabilities. The fiscal year 2005 request includes funds for 108 aircraft, reflecting our continuous successful efforts to increase the number of aircraft we are purchasing to recapitalize our fleet. Within these efforts, it is also important to improve how we buy aircraft and combat systems to recapitalize tactical aviation.

Congress' steady calls for jointness and discipline in acquisition in support of new initiatives has enabled the Department of the Navy to take a different approach to contracts. I would like to emphasize some key examples.

Congress' support of multi-year contracts for the F/A-18E/F, KC-130J, and the E-2C have allowed us to stabilize budgets and work with our industry partners to control costs. The Department has also worked to link incentives to performance in order to measure and reward performance and focus management attention on problems. Such incentives have helped the H-1 upgrade program recover from the Nunn-McCurdy breach. In new contracts, we have also worked to shift fees to the later phases of a program when we can appropriately measure and reward results.

Secretary Sambur and I have worked together successfully on the Joint Tactical Radio System (JTRS), JSF, C4I systems, and other programs to create jointness in common programs between the Air Force, Navy, and Marine Corps.

The fiscal year 2005 President's budget request balances continued recapitalization by obtaining new capabilities, and reducing operating costs, while simultaneously sustaining the legacy fleet of aircraft that are performing magnificently in current operations. We have also sought to fully fund our aircraft production programs, while adding funds to develop important new capabilities, such as JSF, the advanced Hawkeye, the E/A-18G, and the multi-mission maritime aircraft (MMA).

The JSF, as you noted, will provide our Naval Forces with greater survivability, commonality, range, and capability. The air system preliminary design review was completed in June 2003. The first F-135 production engine successfully began tests in October 2003. The short takeoff and vertical landing (STOVL) lift system will begin testing in April 2004. Over 70 percent of the production drawings have been released for the first conventional takeoff and landing (CTOL) air vehicle. The Department decided to allocate approximately 1 additional year to the design effort in order to refine the three variant designs and deliver greater capability to the warfighter.

The V-22 flight-test program is proceeding with discipline, and continues to successfully demonstrate that platform's great capability.

The budget also provides funds to sustain the P-3 fleet and its high operating tempo, while also moving ahead with the development of the MMA to replace the aging P-3 fleet.

Finally, the Broad Area Maritime Surveillance (BAMS) Unmanned Aerial Vehicle (UAV) system will provide a multiple sen-

sor, persistent maritime ISR capability that will allow us to operate and monitor maritime and littoral areas. The Department has determined that at least three candidates can potentially meet the BAMS requirement, so the Navy is proceeding with a competitive program. All of these programs contribute to an integrated warfare strategy, which relies on knowledge, persistence, and precision to bring combat power to bear on an adversary at rates faster than the enemy's response and reaction times.

Even as we plan for the future, we are also focused on the challenges of today. In support of the 1st Marine Expeditionary Forces (IMEF) return to Iraq taking place as we speak, the acquisition team has worked with IMEF to install aircraft survivability equipment on helicopters, to add armor kits to vehicles, and to provide systems to address the improvised explosive device threat.

Secretary England directed the establishment of a formalized process, we call "Operation Respond," to rapidly react to additional technological and materiel requirements generated by the deployed Marine Corps. A senior Navy and Marine Corps team, co-chaired by Lieutenant General Hanlon and myself, will review and coordinate technical and materiel solutions for deployed units' problems, and utilize the expertise throughout the Department of the Navy to expedite solutions to counter these threats.

Mr. Chairman, out of respect for the subcommittee, I will stop, leaving much more to say. You and the members of the subcommittee have been key factors in all of this progress. I offer my great thanks on behalf of myself, the Department, and the sailors and marines who will rely on the equipment we acquire. Congressional support for the Navy and Marine Corps aviation plan is essential to achieving the vision we have, and I thank you for your consideration of our requests.

[The joint prepared statement of Mr. Young, Admiral Nathman, and Lieutenant General Hough follows:]

JOINT PREPARED STATEMENT BY HON. JOHN J. YOUNG, JR., VADM JOHN B. NATHMAN, USN, AND LT. GEN. MICHAEL A. HOUGH, USMC

Mr. Chairman, distinguished members of the subcommittee, thank you for this opportunity to appear before you to discuss the Department of the Navy's fiscal year 2005 Acquisition and Research, Development, Test, and Evaluation (RDT&E) programs.

Your Navy and Marine Corps Team's outstanding performance in the global war on terrorism and Operations Enduring Freedom (OEF) and Iraqi Freedom (OIF) last year underscored the high return on your investment in our combat readiness, our people, and our unique maritime warfighting capabilities. Your return on investment included the lift for 94 percent of the Nation's joint warfighting capability and more than 8,000 naval combat sorties in support of OIF. It demonstrated the latest technology in surveillance, command and control and persistent attack operating from sovereign U.S. territory and exploiting the vast maneuver space provided by the sea.

The global war on terrorism, OEF and OIF demonstrated the enormous contributions Naval Forces make to the effectiveness of joint and coalition forces. Analyses of these conflicts indicate that the warfighting concepts, capabilities development process, and advanced technologies we are pursuing in our Naval Power 21 vision are on the right vector. Experimentation with forward deployed Expeditionary Strike Groups has increased credible global combat capability with which to fight the war on terror and project power. We have leveraged OIF experience to implement the Fleet Response Plan (FRP)—increasing the number of Carrier Strike Groups (CSG) deployed or readily deployable. The Navy and Marine Corps Team now faces a rare inflection point in history with technological infusions and several new ship classes coming on line within the next few years. This year, we will pursue

distributed and joint networked solutions that could revolutionize our capability. With the fiscal year 2005 budget request we intend to:

- Shape the 21st century workforce and deepen the growth and development of our people, and
- Accelerate our investment in Naval Power 21 to recapitalize and transform our force and improve its ability to operate as an effective component of our joint warfighting team.

DEVELOPING TRANSFORMATIONAL JOINT SEABASING CAPABILITIES

The Naval Power 21 vision defines the capabilities that the 21st century Navy will deliver. Our overarching transformational operating concept is seabasing; a national capability, for projecting and sustaining naval power and joint forces that assures joint access by leveraging the operational maneuver of sovereign, distributed, and networked forces operating globally from the sea. Seabasing unifies our capabilities for projecting offensive power, defensive power, command and control, mobility and sustainment around the world. It will enable commanders to generate high tempo operational maneuver by making use of the sea as a means of gaining and maintaining advantage.

Sea Shield is the projection of layered defensive power. It seeks maritime superiority to assure access, and to project defense overland.

Sea Strike is the projection of precise and persistent offensive power. It leverages persistence, precision, stealth, and new force packaging concepts to increase operational tempo and reach. It includes strikes by air, missiles, and by maneuver by Marine Air Ground Task Forces (MAGTF) supported by sea based air and long-range gunfires.

Sea Base is the projection of operational independence. It provides the Joint Force Commander the capability to retain command and control and logistics at mobile, secure locations at sea and enables Expeditionary Maneuver Warfare and Ship-To-Objective-Maneuver (STOM).

FORCENet is the operational construct and architectural framework for naval warfare in the joint, information age. It integrates warriors, sensors, networks, command and control, platforms and weapons into a networked, distributed combat system.

Sea Trial is the Navy's recently created process for formulating and testing innovative operational concepts, most of which harness advanced technologies and are often combined with new organizational configurations, in pursuit of dramatic improvements in warfighting effectiveness. Sea Trial concept development and experimentation (CD&E) is being conducted in close coordination with the Marine Corps combat/force development process and reflects a sustained commitment to innovation. These efforts tie warfare innovation to the core operational challenges facing the future joint force.

Sea Enterprise is the flagship effort for freeing up additional resources to support military transformation initiatives through streamlining naval business processes. Involving the Navy headquarters, the systems commands and the Fleet, Sea Enterprise seeks to improve organizational alignment, refine requirements and reinvest savings to buy the platforms and systems needed to transform the naval contribution to the joint force.

As a means of accelerating our investment in Naval Power 21, we employ the Naval Capability Development Process (NCDP) and Expeditionary Force Development System (EFDS). The NCDP and EFDS take a concepts-to-capabilities approach to direct investment to achieve future warfighting wholeness. The NCDP takes a sea-based, offensive approach that provides power projection and access with distributed and networked forces featuring unmanned and off board nodes with penetrating surveillance via pervasive sensing and displaying that rapidly deliver precision effects. The EFDS assesses, analyzes and integrates MAGTF warfighting concepts, and requirements in a naval and joint context to support the overarching operational concept of Joint Seabasing. Both processes are designed to incorporate innovative products of service and joint concept development and experimentation (CD&E) and science and technology (S&T) efforts.

The fiscal year 2005 budget request reflects the investments that will most improve our warfighting capability by developing and investing in future sea based and expeditionary capabilities for the Navy and Marine Corps.

AVIATION PROGRAMS

The fiscal year 2005 President's budget request balances continued recapitalization in obtaining new capabilities and reducing operating costs while simultaneously sustaining the legacy fleet aircraft that are performing magnificently in current op-

erations. Taking advantage of multi-year procurement (MYP) to achieve significant savings in procurement accounts, the Navy has entered, or will soon enter numerous MYP contracts that will define the future of weapons systems and further investment. The Department's fiscal year 2005 budget request will utilize MYP arrangements for the F/A-18E/F (both airframe and engine), the KC-130J and the E-2C to maximize the return on our investment. Our proposed plan will procure 44 tactical, fixed wing aircraft (42 F/A-18E/F, and 2 E-2C), as well as 8 MV-22, and 9 upgraded UH-1Y/AH-1Z helicopters. This plan also continues the development of the F-35, the E-2C Advanced Hawkeye, the EA-18G, Multi-mission Maritime Aircraft (MMA), and the Aerial Common Sensor (ACS) and initiates the Broad Area Maritime Surveillance (BAMS) Unmanned Aerial Vehicles (UAV) development.

Sea Shield

Multi-mission Maritime Aircraft (MMA)/P-3C

Current P-3 aircraft are flying in excess of 150 hours per month in support of OEF and OIF. This high flight utilization requires special structural inspections to keep the aircraft safely flying and the Navy has developed a comprehensive sustainment, modernization, and re-capitalization plan for the force. The fiscal year 2005 budget request reflects \$56.9 million for Special Structural Inspections (SSI) and Special Structural Inspections—Kits (SSI-K), which will allow for sustainment and continued operation of approximately 148 aircraft. The fiscal year 2005 budget request also reflects \$53.8 million for ASW Improvement Program (AIP) to continue to meet COCOM requirements. To replace these critical aircraft, the Navy is procuring an MMA. The program is completing component advanced development (CAD) and in December 2003 received proposals for the System Development and Demonstration (SDD) contract from both competitors (Boeing with 737 commercial derivative and Lockheed-Martin with Orion 21 military derivative). Evaluations of these proposals are ongoing to support down select to final system provider and contract award after Milestone B in May 2004. The fiscal year 2005 budget requests \$496 million for continuation of SDD of MMA. Our comprehensive and balanced approach has allowed for re-capitalization of these critical assets.

MH-60R and MH-60S

The fiscal year 2005 budget requests \$409 million in procurement and \$79 million in RDT&E for the replacement and upgrade of Light Airborne Multi-Purpose System (LAMPS) MK III SH-60B and carrier-based SH-60F helicopters to the new configuration designated as MH-60R. Procurement quantity was reduced to mitigate delays in developmental and operational testing. Testing identified stability issues with the Multi-mode Radar (MMR) and software performance issues with MMR/IFF Interrogator, electronic support measures and acoustic systems. Fiscal year 2005 funding will fully support a revised procurement profile.

The fiscal year 2005 budget requests \$400 million in procurement and \$81 million in RDT&E funds for the MH-60S, which is the Navy's primary combat support helicopter designed to support Carrier and Expeditionary Strike Groups. It will replace a number of legacy platforms with a newly manufactured H-60 airframe. The MH-60S program entered into a full rate 5-year MYP contract with the Army in September 2002, for up to 237 aircraft. The fiscal year 2005 budget request supports the recently awarded MH-60 Common Cockpit MYP. The \$423 million contract delivers common cockpits for both MH-60R and MH-60S aircraft, saving the Navy up to \$63 million.

AIM-9X

The fiscal year 2005 budget requests \$35.2 million for 157 missiles. AIM-9X was deployed to operational sites last summer after a successful LRIP 4 decision. Test asset availability that slowed the Operational Test was overcome, and the operational evaluation (OPEVAL) completed in late summer. The Full Rate Production decision is scheduled for March 2004.

Sea Strike

F/A-18 E/F

The F/A-18E/F is a significant step forward in improving the survivability and strike capability of the carrier air wing. The Super Hornet provides a 40-percent increase in combat radius, 50 percent increase in endurance, and 25 percent increase in weapons payload over our older Hornets. Three Super Hornet squadrons deployed during OIF as Fleet transition of the F/A-18E/F continues. The latest squadron to stand up is based with the carrier air wing forward deployed in Japan.

The fiscal year 2005 budget requests \$2.98 billion for 42 F/A-18 E/F aircraft for the first year of the second 5-year MYP contract (fiscal year 2005 to fiscal year

2009). The Super Hornet has used a spiral development approach to incorporate new technologies, such as the Joint Helmet Mounted Cueing System, Advanced Targeting Forward Looking Infrared (ATFLIR), Shared Reconnaissance Pod System (SHARP) and Multifunctional Information Distribution System (MIDS) data link. Last year, the ATFLIR successfully passed the Full Rate Production (FRP) decision, while the Advanced Electronically Scanned Antenna Radar system received Low Rate Initial Production (LRIP) authority and the SHARP pod completed a successful early operational capability (EOC) onboard U.S.S. *Nimitz* with VFA-41.

F-35 Joint Strike Fighter (JSF)

Our recapitalization plan includes the JSF, a stealthy, multi-role fighter aircraft designed jointly to be an enabler for Naval Power 21. The fiscal year 2005 budget request contains \$2.2 billion for continuation of SDD on the JSF. The JSF will enhance the Department of the Navy's precision strike capability with unprecedented stealth, range, sensor fusion, improved radar performance, combat ID and electronic attack capabilities compared to legacy platforms. CV JSF complements the F/A-18E/F and EA-18G in providing long range strike capability and much improved persistence over the battlefield. STOVL JSF combines the multi-role versatility of the F/A-18 and the basing flexibility of the AV-8B. The commonality designed into the JSF program will reduce acquisition and operating costs of Navy and Marine Corps tactical aircraft and allow enhanced interoperability with our Allies and sister Services.

The JSF has completed the second year of its development program, and the program continues working to translate concept designs to three producible variants. The JSF development activities for propulsion, subsystems, avionics, and autonomic logistics have gone well. The Air System Preliminary Design Review was completed in June 2003, and the F135 First Engine to Test was successfully completed in October 2003. The airframe design effort, however, is taking longer and is more complex than had been originally anticipated. Additional design work is required to address technical issues, primarily weight projections, resulting in a SDD cost increase, SDD schedule delays, and a 1-year slip to starting LRIP to fiscal year 2007 vice fiscal year 2006. These technical issues have put pressure on our ability to meet several performance specification requirements as well as some [M.A.1] Key Performance Parameters. We believe current issues are solvable within normal parameters of design fluctuation and we are re-planning JSF SDD to make sure we succeed. Specifically, our SDD plan recognizes that STOVL performance is absolutely vital. As such, we are focused to ensure STOVL viability for our warfighters; aggressively pursuing trade studies to improve performance by reducing weight; and aggressively pursuing propulsion enhancements to improve performance. An independent review team is also examining the program to make sure we are following the correct path.

V-22

The fiscal year 2005 budget request includes \$918 million for eight MV-22s and \$304 million for continued testing and evaluation. The V-22 Osprey resumed flight-testing in May 2002, and it has flown in excess of 1,500 hours. Flight-testing continues along an event-driven schedule and is going well. In August 2003, OSD directed the Services to reduce the number of aircraft from 20 to 17 in fiscal year 2006. Subsequently, the aircraft procurement ramp should increase by approximately 50 percent per year and use the savings accrued from the production adjustments for reinvestment into program interoperability improvements and cost reduction initiatives.

CH-53X

The fiscal year 2005 budget requests \$103.1 million RDT&E to begin the SDD phase of the CH-53X program. The Marine Corps' CH-53E continues to demonstrate its value as an expeditionary heavy-lift platform, with significant assault support contributions in Afghanistan, the Horn of Africa, and Iraq. Vertical heavy lift will be critical to successful 21st century operations in anti-access, area-denial environments globally, enabling force application and focused logistics envisioned within the joint operating concepts. The CH-53E requires significant design enhancements to meet future interoperability requirements, improve survivability, expand range and payload performance, improve cargo handling and turn-around capabilities and reduce operations and support costs. An independent Analysis of Alternatives determined that a "new build" helicopter would be the most cost-effective solution. The Operational Requirements Document that will guide the development of this aircraft is in review. The CH-53X series aircraft will address our emerging heavy-lift requirements.

F/A-18 A/B/C/D

The fiscal year 2005 budget request contains \$19.9 million for the continuation of the upgrade program for our F/A-18As. The Marine Corps continues to upgrade Lot 7-11 F/A-18As (with a program objective of 76) to Lot XVII F/A-18C aircraft capability as well as digital communications and tactical data link. The Marine Corps anticipates programmed upgrades to enhance the current capabilities of the F/A-18C/D with digital communications, tactical data link and tactical reconnaissance systems. This upgrade ensures that our F/A-18s remain viable and relevant in support of Tactical Air (TACAIR) Integration and Expeditionary Maneuver Warfare. The Marines expect the F/A-18A to remain in the active inventory until 2015. The Marines are also exploring the feasibility of placing the Litening targeting pod on the F/A-18D aircraft. When combined with data link hardware from Predator UAVs, this pod provides real time video to the ground commander and serves as an interim solution to support real world operations until the ATFLIR pod is operationally fielded in sufficient numbers. This new start notification has been sent to Congress.

Integrated Defensive Electronic Countermeasures (IDECM)

The fiscal year 2005 budget reflects \$13.4 million in RDT&E to continue the development of the IDECM Block III (ALQ-214 w/the ALE-55 (fiber optic towed decoy)) that will support a fiscal year 2006 OPEVAL. Additionally, \$99 million in APN is included for the procurement of 38 ALQ-214 systems, and \$9 million in procurement of ammo, Navy and Marine Corps (PANMC) for the procurement of 400 ALE-50 towed decoys. ALE-55 procurement is scheduled for fiscal year 2006. Congress added \$9 million to RDT&E, N in the fiscal year 2004 budget for the IDECM program. This funded resolution and testing of (then) remaining technical issues. As a result, OPEVAL was completed and the IDECM Block II OPEVAL Report was signed October 3, 2003, with both a finding of "Operationally Effective and Operationally Suitable", and a recommendation for fleet introduction. Initial operational capability (IOC) is planned for September 2004. Full Rate Production deliveries begin in fiscal year 2005.

EA-18G

The E/A-18G is the Navy's replacement for the EA-6B Airborne Electronic Attack aircraft and represents an entirely new way of looking at legacy aircraft replacement. Leveraging existing production capabilities at Boeing and Northrop Grumman, the Navy is using the F/A-18E/F MYC to buy an additional quantity of 'F' Aircraft, and marrying those airframes with Northrop Grumman's in-production Improved Capabilities (ICAP)-III Airborne Electronic Attack (AEA) system to produce the E/A-18G to replace the aging EA-6B aircraft. This allows us to deliver the next generation Airborne Electronic Attack capability at reduced cost and in the shortest possible timeframe. The Marine Corps is examining a range of possibilities that will provide the needed capability.

The fiscal year 2005 budget request reflects \$359 million for SDD leading to Critical Design Review currently planned for April 2005. During fiscal year 2004, EA-18G efforts focused on risk reduction and development activities concerning the integration of EA-6B Improved Capabilities (ICAP III) electronic attack technologies into the F/A-18E/F air vehicle. The EA-18G was approved to enter SDD on December 18, 2003, as an ACAT ID program. A total quantity of 30 systems will be procured in LRIP with a planned fiscal year 2009 IOC and fiscal year 2012 FOC. The EA-18G will replace carrier-based Navy EA-6B aircraft by 2012.

AH-1Z/UH-1Y/Existing Marine Corps Helicopters

The fiscal year 2005 budget requests \$241.8 million APN funds to procure 9 UH-1Y/AH-1Z aircraft and \$90.4 million RDT&E funds to complete the H-1 Upgrades test program. The Engineering and Manufacturing Development phase of the H-1 Upgrades Program to remanufacture 180 AH-1W and 100 UH-1N helicopters into state-of-the-art AH-1Z and UH-1Y models is progressing well. The development program is over 90 percent complete and the aircraft are meeting all Key Performance Parameters. Cost and schedule performance projections are tracking well to the Performance Measurement Baseline. LRIP Lot I was approved in October 2003, with the contract awarded to Bell Helicopter in December 2003. The technical performance of the flight test remains strong with the five flight test aircraft completing over 1,500 flight hours during combined contractor/government testing at Patuxent River, MD, and completing the Block "C" modification that added the Helmet-Mounted Sight/Display and active elevator. The program is on track for a second Operational Assessment in March 2004, followed by an LRIP Lot II decision planned for August 2004.

The Marine Corps continues to support its fleet of existing of UH-1N, AH-1W, CH-53E, CH-53D, and CH-46E helicopters with numerous enhancements and Operational Safety Improvement Programs (OSIPs). As an example, the fiscal year 2005 budget requests \$56.4 million for the CH-46E T-58 Engine Reliability Improvement Program; this program will restore the capability of these engines to their original power specifications and reduce maintenance requirements.

AV-8B

The fiscal year 2005 budget requests \$12.3 million RDT&E funds to support development of the Tactical Moving Map Display and the Engine Life Management Plan and \$20.8 million APN funding for procurement of Open Systems Core Avionics Requirement (OSCAR) and Engine Life upgrades. The AV-8B we fly today is not the same aircraft that we flew 10 years ago. Over the last decade, the Harrier has gone from a daytime air-ground attack aircraft to a night/adverse weather precision strike platform. The AV-8B Remanufacture Program not only updated the Harrier to a more capable and more reliable aircraft, but also provided an additional 6,000 hours of airframe life, making the AV-8B one of the newest airframes in the fleet. Today's AV-8B includes a night-attack avionics suite (Navigation FLIR, digital moving map, color displays, night vision goggle lighting), APG-65 multi-mode radar, a more powerful and reliable Pegasus (408) engine, and the Litening targeting pod. The AV-8B OSCAR program, currently in LRIP, will also add new Mission Systems and Warfare Management Computers, open systems architecture and commercial software and JDAM capability. Our AV-8B Harriers have flown extensively in support of Special Operations Forces in OEF, as well as during OIF last year. AV-8Bs demonstrated the expeditionary flexibility of short take-off/vertical landing (STOVL) aircraft while becoming the most forward deployed tactical aircraft in theater. Several Harriers employed Litening targeting pods with real-time video downlink capability that provided visual target verification by ground personnel. The Litening pods' inherent capability to laser designate targets for precision munitions also marked spots on the ground with infrared energy.

EA-6B

The fiscal year 2005 budget requests \$51.7 million for Wing Center Section modifications and \$53 million for procurement of 10 Improved Capability (ICAP) III systems. The aging EA-6B has been in ever-increasing demand as the Department of Defense's (DOD) only tactical radar jamming aircraft that also engages in communications jamming and information operations. This demand has been particularly evident during OIF and OEF. Safety considerations, due to wing center section and outer wing panel fatigue have driven aircraft inventory (aircraft available to the fleet) from 95 to 71. Aircraft inventory is projected to return to above 90 by the first quarter of fiscal year 2006. Congress provided a \$85 million supplemental in fiscal year 2004 that has accelerated the procurement and installation efforts to replace both wing center sections and outer wing panels. Priorities for this platform are current readiness and successful fleet introduction of ICAP III selective reactive jamming system. The Marine Corps expects to fly the EA-6B ICAP III until transitioning to a new electronic attack aircraft yet to be determined.

Precision Munitions

Precision-Guided Munitions (PGMs) are where the effects of decisive power "from the sea" are realized most clearly. From more than 870 Tomahawks fired from more than 35 surface and subsurface combatants to thousands of other Navy PGMs deployed in OEF and OIF, PGMs provided key Navy combat strike power and lethality.

The Navy made investments in PGMs to ramp-up production for OEF/OIF and subsequently support ongoing replenishment of needed wartime expended inventories. Due to the effectiveness of the Navy PGMs and the ways in which they were employed in combat, we did not use as many as we had expected. Therefore, we now find ourselves able to reduce the procurement rate for refilling our required inventories.

The fiscal year 2005 budget request will continue to enhance the Navy's warfighting capability by supporting ongoing production programs, improving existing PGMs and establishing new programs. All of these PGM programs will facilitate continued domination in the maritime environment, support in-land operational forces and enhance the overall department strategy to deter and dissuade potential adversaries while supporting our allies and friends.

Joint Standoff Weapon (JSOW). The fiscal year 2005 budget requests \$9.5 million for development and integration of the Selective Availability Anti-Spoofing Module (SASSM), and \$74.6 million for procurement of 216 JSOW-A missiles and \$64.8 million for procurement of 173 JSOW-C missiles. The fiscal year 2005 budget request

supports continued production of the combat proven JSOW-A submunition variant and continued development of the new JSOW-C penetrator variant. We approved JSOW-C for LRIP in June 2003 and plan for Full Rate Production approval in 2004.

Advanced Anti-Radiation Guided Missile (AARGM). The fiscal year 2005 budget request of \$61.5 million supports ongoing development of the next generation anti-radiation missile. It should be noted that recently, the AARGM successfully demonstrated its ability to ignore a friendly radar site yet destroy an enemy radar site that had shut down in an effort to avoid attack. Additional funding in the fiscal year 2005 budget request enables acceleration of the IOC from fiscal year 2010 to fiscal year 2009.

Joint Common Missile (JCM). The fiscal year 2005 budget requests \$82.8 million for JCM development. The fiscal year 2005 budget request reflects increased support for the development of the JCM that is planned for use by Navy, Marine Corps and Army aviation assets to close a capability gap in precision point attack for fixed-wing and rotary-wing aircraft against time critical, moving and short-dwell relocatable targets. The Milestone B decision is planned for March 2004.

Other Direct Attack PGMs. The fiscal year 2005 budget requests \$151.2 million for procurement of Joint Direct Attack Munition (JDAM) Kits and \$60.2 million for procurement of Laser Guided Bomb (LGB) Kits. The fiscal year 2005 budget request for other PGM hardware such as the JDAM and LGB kits reflects adequate support for the production of these essential combat-proven weapons.

Tactical Tomahawk

The fiscal year 2005 budget requests \$256.2 million for 293 missiles, an increase of \$64 million and 75 missiles over the amount projected for fiscal year 2005 in the fiscal year 2004 budget. Tactical Tomahawk represents a tremendous improvement over the successful Block III Tomahawk cruise missile. The state-of-the-art components allow reduced response time, multiple pre-planned outcomes, and improved lethality and navigation improvements through innovations in manufacturing and production techniques. We have committed to replenish our precision-guided munitions inventories, and we will utilize a multi-year acquisition strategy to maximize the quantity of Tomahawk missiles procured. The Full Rate Production decision is on track for June 2004. Additionally, we are in the final stages of our second re-manufacture program, converting all available older Tomahawk airframes to the latest Block III configuration. This effort will be complete in May of this year and will yield an additional 456 missiles.

Sea Base

KC-130

The fiscal year 2005 budget requests \$324 million for four KC-130J Hercules aircraft. These aircraft will be procured as part of an existing Air Force MYC. The Marine Corps has taken delivery of 13 KC-130J aircraft and has an additional 25 planned for procurement within the Future Years Defense Plan (FYDP). The KC-130 fleet once again proved itself as a workhorse during operations in Iraq. The KC-130J provides a major enhancement to this proven platform, extending its range, payload, and refueling capabilities. Bold steps in simulator training and joint flight instruction place the KC-130J program on the leading edge of the transformation continuum. Additionally, we have continued to ensure the tactical capability of our existing KC-130F, R and T series aircraft by installing night vision kits and upgraded Aircraft Survivability Equipment.

C-40

The fiscal year 2005 budget requests \$65.4 million for one C-40 (Boeing 737-700C). This aircraft replaces the aging C-9 providing intra-theater logistics support. The Navy has taken delivery of six with two more on contract. An additional six are planned for procurement in the FYDP.

FORCEnet

E-2C and Advanced Hawkeye

A critical enabler of transformational intelligence, surveillance and reconnaissance, the E-2C Advanced Hawkeye (AHE) program will provide a robust overland capability against current and future cruise missile-type targets. The AHE program will modernize the E-2 weapons system by replacing the current radar and other system components to maintain open ocean capability while adding transformational surveillance as well as theater air and missile defense capabilities.

The fiscal year 2005 budget requests \$248 million to procure one E-2C and one TE-2C as the second year of a 4-year MYP. This effort will keep the production line viable while the E-2 AHE, formerly known as the Radar Modernization Program,

continues spiral development toward an IOC in fiscal year 2011. Congressional notification of full funding and economic rate was sent in January 2004. The MYP contract was awarded on January 22, 2004. A critical enabler of transformational intelligence, surveillance and reconnaissance, the E-2C AHE program will provide a robust overland capability against current and future cruise missile-type targets. The AHE program will modernize the E-2 weapons system by replacing the current radar and other system components to maintain open ocean capability while adding transformational surveillance as well as theater air and missile defense capabilities. The AHE program successfully entered the SDD phase in June 2003. Further, open architecture standards are being integrated into our E-2C aircraft and the AHE program to improve interoperability with DOD systems.

Aerial Common Sensor (ACS)/EP-3

The fiscal year 2005 budget requests \$25 million for joint requirements for ACS aircraft development. ACS is a joint program with the Army that will replace the EP-3E aircraft. It will provide a transformational multi-intelligence platform capable of providing strike support and Direct Threat warning to the warfighter. The ACS is in a competitive source selection between Lockheed-Martin's Embraer 145-CS and Northrop Grumman's Gulfstream 450 RC-20 and a source select decision is scheduled for May 2004. The Navy will report to a Milestone Decision Authority for an Interim Program Review in October 2004.

Unmanned Aerial Vehicles (UAV)

The global war on terrorism continues to place emphasis on the importance of UAVs. The fiscal year 2005 budget request reflects our commitment to a focused array of UAVs that will support and enhance both surveillance and strike missions with persistent, distributed, netted sensors. The Navy's UAV programs are focused on two areas.

Broad Area Maritime Surveillance (BAMS) UAV. The fiscal year 2005 budget requests \$113.4 million for development of the BAMS UAV. The BAMS UAV program will meet the Navy requirement for a persistent intelligence, surveillance and reconnaissance (ISR) capability as well as address the growing ISR gap and the shortfall in maritime surveillance capability. The BAMS UAV System will be a force multiplier for the Fleet Commander, enhancing situational awareness of the battle-space and shortening the sensor-to-shooter kill chain. BAMS UAV will work as an adjunct to the new MMA to provide a more affordable, effective and supportable maritime ISR option than current ISR aircraft provide. The BAMS UAV System is intended to be a Navy fleet asset for tactical users such as the ESG, the CSG and the Joint Forces Maritime Component Commander (JFMCC).

Fire Scout UAV. The fiscal year 2005 budget requests \$42.9 million to continue development of the Fire Scout UAV. The Fire Scout is a vertical takeoff and landing tactical UAV (VTUAV) designed to operate from all air-capable ships, carry modular mission payloads, and operate using the Tactical Control System and Tactical Common Data Link. The Fire Scout UAV will provide day/night real time ISR and Targeting as well as communication-relay and battlefield management capabilities to support core Littoral Combat Ship (LCS) mission areas of ASW, MIW, and ASUW for the Naval Forces. Upgrades will include four-bladed rotor, increased payload capacity, and weaponization to address small surface threats. Upgraded Fire Scout capability will be fielded with LCS Flt 1 in fiscal year 2010. The Navy Fire Scout program plans coordination with the U.S. Army Future Combat System program.

Marine Corps UAV. The Marine Corps continues to examine options for the sustainment and eventual replacement of its aging Pioneer fleet. Pioneer flew more than 2,350 hours in support of Operation Iraqi Freedom I, highlighting the criticality of these systems for our Marine forces. Requirements for vertical unmanned aerial vehicle (VUAV) are being developed in consonance with Ship to Objective Maneuver concepts from Expeditionary Maneuver Warfare and with lessons learned from recent operational experience.

Joint Unmanned Combat Air System (JUCAS). The Department is committed to a JUCAS initiative, developed in partnership with the Air Force. The Navy and the Air Force have defined a common set of science and technology requirements that recognizes the unique needs of each Service. This work will support a competitive acquisition strategy for a JUCAS program.

Other Significant Capabilities

T-45

The fiscal year 2005 budget requests \$254 million for eight T-45 aircraft. The request also includes full funding for the Required Avionics Modernization Program (RAMP). A performance-based logistics contract was awarded to L3 COM Corpora-

tion for the airframe and Rolls Royce for the engine in July 2003. This enhanced performance-based logistics concept will provide cost wise readiness and save the DOD approximately 10 percent over the previous contract.

Presidential Helicopter Replacement Aircraft (VXX)

The fiscal year 2005 budget requests \$777.5 million RDT&E for SDD efforts on the VXX program. The goal of this accelerated program is to introduce a new Presidential airlift aircraft by end of calendar year 2008. The VXX program will utilize an evolutionary acquisition approach through a two-part incremental development to meet this need. The goal of the VXX development is to deliver a safe, survivable, and capable vertical lift aircraft while providing uninterrupted communications with all required agencies. To support the accelerated VXX program, the Department will award a SDD contract in the third quarters of fiscal year 2004.

SEA TRIAL AND SEA ENTERPRISE IN ACTION: OPERATION RESPONSE

In support of the I Marine Expeditionary Force's (I MEF) return to Iraq scheduled to begin March 2004, and in support of deployed Marines in Afghanistan, the Secretary of the Navy directed the establishment of a formalized process and action team, "Operation Response," to rapidly respond to technological and materiel requirements generated from deployed marines. A senior Navy-Marine Corps team co-chaired by the Assistant Secretary of the Navy (Research, Development, and Acquisition) and the Deputy Commandant for Combat Development will review and coordinate technical and materiel requirements for deployed units and utilize the technical and engineering expertise throughout the Department of the Navy and industry to expedite the best solutions available to counter rapidly evolving threats. This process will leverage and expand the current roles and capabilities of our established requirements generation and materiel development and acquisition commands in order to better respond to innovative enemy threats.

Intelligence, Surveillance, and Reconnaissance (ISR)

The Marine Corps will be rapidly fielding a number of systems to provide enhanced ISR capabilities in the theater of operations. These systems include Unmanned Aerial Vehicles (UAVs), such as Dragon Eye and an ONR developed vehicle, Silver Fox. A recent demonstration of the Scan Eagle UAV went very well and I MEF is preparing an Urgent Needs Statement for the system. The Marines also plan to employ aerostat balloons and possibly smaller, Army Rapid Equipping Force-derived platforms to provide persistent ISR coverage.

Aircraft Survivability Equipment (ASE)

The Navy and Marine Corps aviation has partnered with industry to expedite the application of ASE on the Marine Corps rotary and fixed wing aircraft deploying to the CENTCOM area as part of the MEF's Aviation Combat Element (ACE). Rotary wing aircraft will have the requisite ASE installed by industry teams prior to their departure, enroute on ships, upon arrival in-theater, or shortly after their arrival in-theater. KC-130 aircraft, which were not planned to receive ASE upgrades, will now receive some ASE upgrades initially shortly after they arrive in-theater and additional design work is being completed for full upgrades to be applied while in-theater.

SUMMARY

Our Naval Forces are unique in their contribution to the Nation's defense. Versatile naval expeditionary forces are the Nation's first responders, relied upon to establish the tempo of action, control the early phases of hostilities, and set conditions for decisive resolution. America's ability to protect its homeland, assure our friends and allies, deter potential adversaries, and project decisive combat power depends on maritime superiority. The transformation of Naval Forces is dedicated to greatly expanding the sovereign options available worldwide to the President across the full spectrum of warfare by exploiting one of our Nation's asymmetric advantages—control of the sea. The transformation of our Naval Forces leverages enduring capabilities for projecting sustainable, immediately employable joint combat power by facilitating the accelerated deployment and flexible employment of additional joint capabilities through a family of systems and assets afloat. Our fiscal year 2005 budget request seeks to accelerate our investment in Naval Power 21 to transform our force and its ability to operate as an effective component of the joint warfighting team. Congressional support of this plan is essential to achieving this vision—I thank you for your consideration.

Senator SESSIONS. Thank you, Secretary Young, and we thank you, Admiral Nathman and General Hough, for your work.
Secretary Sambur.

STATEMENT OF HON. MARVIN R. SAMBUR, ASSISTANT SECRETARY OF THE AIR FORCE FOR ACQUISITION; ACCOMPANIED BY LT. GEN. RONALD E. KEYS, USAF, DEPUTY CHIEF OF STAFF FOR AIR AND SPACE OPERATIONS, HEAD-QUARTERS

Dr. SAMBUR. Thank you, Mr. Chairman and Ranking Member Lieberman, for this opportunity to discuss with you and your Subcommittee the acquisition plans and status of our tactical weapons systems programs. I am particularly delighted to present a brief excerpt of my written statement, which, with your approval, Mr. Chairman, I hope to be made part of the official record.

Senator SESSIONS. We will make that a part of the record, and Secretary Young's.

Dr. SAMBUR. Thank you.

The purpose of my statement is to provide some examples of the success we have achieved during the past year, both on selected acquisition programs, as well as in our agile acquisition initiatives. In the F/A-22 Defense Acquisition Board (DAB) this week, the acting Under Secretary of Defense for AT&L was "very encouraged" by the program's progress, and saw, "no impediment to entering IOT&E in the April time frame." The program completed phase one of its operational testing on February 20. While the Air Force's Operational Test and Evaluation Center (AFOTEC) has not formally completed their analysis, the AFOTEC commander characterized the jet's effectiveness as "very impressive." In particular, during recent training missions with simulated air-to-air engagement, a force of Raptors has been clearing the skies of adversaries in a matter of minutes. In trials pitting four F/A-22s versus eight F-15Cs, all adversaries were killed before a single missile could be launched from any of the F-15s, and that is our current number-one fighter.

The program has also made tremendous strides improving avionics software stability. Avionics startup is no longer an issue, and total system reboots that plagued the program last year no longer occur. Overall stability has improved more than tenfold with the stability measure of effectiveness now exceeding the required threshold of 5 hours. The development program is nearing completion, and there are just a handful of final details required before beginning Initial Operational Test and Evaluation (IOT&E).

While the F/A-22 production delivery rate is not yet to our satisfaction, we are implementing numerous producability improvements that have pointed us in the right direction and have resulted in a more credible replanned schedule. Having said that, we closely manage and monitor aircraft deliveries on a daily basis, to include how quickly the contractor is implementing the identified manufacturing improvements. We are very confident Raptor production will recover to the original schedule before Lot-4 deliveries.

To add to the good news, we have reached verbal agreement on Lot-4 production for 22 jets, exactly on the required target price

curve—that's good news—showing that program stability and management attention pay big dividends.

On the munitions side, the Air Force successfully demonstrated the power-up, data-transfer, launch- and impact-accuracy of 80—that's eight-zero—independently targeted 500-pound JDAMs from a single B-2 bomber. In practical terms, this translates into the ability to destroy an entire enemy airfield in a single pass, or to attack up to 80 independent, individual targets on a given sortie. The JDAM program currently exceeds performance requirements, is under budget, and is on schedule to meet the Chief's required asset-availability date of November 2004. In addition, the JDAM program recently achieved the 3,000 kits-per-month milestone necessary to sustain peak consumption and replenish stock. This represents a twofold increase in production rate in a little more than 1 year.

I am proud to report that JDAM and several other mission programs were also recognized last year with quality, acquisition, and engineering awards, including the William J. Perry Award and Aviation Week's 2004 Quality Center Award.

I would like to shift gears and take a minute to highlight some of our acquisition initiatives. The goal for acquisition is simple: deliver what we promise when we promise. To that end, we are institutionalizing increased collaboration among the various acquisition entities so as to create an integrated, more effective acquisition enterprise. These policies have touched the requirements phase, the testing phase, and even that of development, technology development.

Most significantly, late last year we took the first step in cementing true collaboration with the Air Force Materiel Command by moving the majority of our program executive offices to the field and assigning the Program Executive Officers (PEOs) responsibility to the Product Center commander. This movement and reassignment have clarified lines of responsibility and increased the speed and credibility of our acquisition programs. In accomplishing this realignment, the chain of acquisition authority flows through the PEO directly to my office, as the Assistant Secretary for Acquisition. By geographically co-locating the PEOs at the point where most of these programs are executed, we are enhancing our ability to deliver on acquisition promises.

Finally, I would like to highlight some successful interactions I have had with Service counterparts in creating an environment of jointness. For example, as Secretary Young has said, we have worked together to merge two of the joint tactical radio systems developments into one. This merging should lead to assured interoperability and lower overall cost to both Services. In addition, just last week the Air Force hosted another major armament summit at Eglin with senior acquisition and operational leaders from all Services. Through collaborations such as this, we are seeking ways to "join the swords," to make our armaments developments truly joint.

In closing, I wish to reiterate that the Air Force acquisition has had a very successful year. I thank you, and I look forward to answering your questions, with General Keys, who is with me from the Acquisitions Operations part of the Air Force.

[The prepared statement of Dr. Sambur follows:]

PREPARED STATEMENT BY DR. MARVIN SAMBUR

INTRODUCTION

Thank you for this opportunity to discuss with you and your subcommittee today, the Air Force's Tactical Weapons Systems. I am also happy to report to you in this written statement, some of the successes and outstanding efforts of your Air Force Professionals as we strive to improve the way we do business, while transitioning critical technology to warfighting capability. General Keys and I are proud to come before you today and discuss our plan for maintaining the United States Air Force as the dominant air force in the world. We seek your committee's support. Together we can achieve the mutual commitment necessary for those critical programs that ultimately deliver on the promise of warfighting capability that ensure victory when necessary.

Throughout the past year, we have made progress toward achieving my vision of a more efficient and effective acquisition process. Despite numerous challenges, we succeeded in developing new capability for, and in many instances transitioning that capability to, the joint warfighter. As I will shortly describe, my staff and I continue to seek ways to improve our approach to the acquisition process, institutionalizing an enterprising paradigm and enjoying individual successful outcomes along the way. In this manner, we do our part in serving our Nation's defense.

We have continued to play a starring role in the Air Force core competency of turning technology into warfighting capability. The challenge, which we confidently embrace, remains doing so amidst the often-unpredictable dynamics of world events, business interests, technology maturation, and public support. Despite these challenges, I can assure you that we in the Air Force stand as committed as ever to meet those challenges of today, as well as tomorrow, and to follow the direction provided by our Secretary of Defense.

AGILE ACQUISITION UPDATE

During similar testimony last year, I told of a mandate given me by the Secretary and Chief of Staff of the Air Force to change the way we in Air Force Acquisition do business. Our programs have all-too-often suffered from development cost and schedule overruns, which have in turn led to fielding delays, fewer production quantities, and even reduced capability. I identified and presented several root-cause factors that I believe can lead to poor program execution and subsequently laid out a series of policies instituted to address these underlying causes. These areas included unstable requirements, lack of test community buy-in, inadequate systems engineering, unstable funding, and faulty cost estimates. By getting a handle on these problems, our intent was, and still is, to bring back stability and credibility to our modernization efforts.

The goal is simple, if difficult: deliver what we promise, when we promise. I am pleased to report on our progress this past year in addressing the areas identified above.

STAKEHOLDER COLLABORATION

During similar testimony last year, I emphasized the importance of establishing and fostering collaboration as an enabling theme in our quest to achieve "Agile Acquisition." We believe that greater cooperation among stakeholders in defining priorities and key requirements, especially as they inform development of a capability-based acquisition strategy, is of paramount importance. For the first time ever, during the past year the Acquisition and Operations communities collaborated on simultaneous revisions to regulations governing their respective portions of the capabilities acquisition system. High Performance (Integrated Product) Teams (HPT) with members from all stakeholder organizations were formed to work on these efforts, synchronizing all the policies and making clear along the way that speed and credibility are the underpinning of what we do. The goal was simple: a seamless, collaborative process that smoothly implements the DOD 5000 series and the Joint Capabilities Integration and Development System (CJCSI 3170.01C). As might have been expected, we found that the very exercise of bringing these regulations into harmony has served to open vital lines of communications and collaboration that we expect to pay dividends in the future.

In fact, General Keys and I have jointly signed out a policy statement that further stipulates how this collaborative environment will be put into practice. System acquisition management plans and acquisition strategies will be routinely developed

using the HPT process. The responsible acquisition organization will convene the same HPT that initially developed the required operational capability to subsequently generate acquisition courses of action (COA) (COAs should contain: cost, schedule, contract strategy, spiral approach, etc.). Ultimately, we will call on Major Command (MAJCOM) commanders to commit to the COA that best addresses warfighter needs. We expect this environment to foster a mutual understanding of what is required, and what is possible.

In January, I further operationalized the program execution end of this collaboration by instituting Capabilities Program Execution Reviews (CPER). The goal here is to provide timely information on program issues so that MAJCOM commanders can make informed decisions. During these CPERS, which will be held twice a year with each MAJCOM, we will identify program execution issues and develop corresponding options. We'll provide a proposed action and relate impacts to the master capabilities as identified in the Capabilities Review and Risk Assessment. The decision to institutionalize the CPER process was the result of positive feedback from last year's pilot sessions with Air Combat and Air Mobility Commands.

A key aspect of the collaborative environment that has already been alluded to is an overall approach to straight talk that I have dubbed, "Expectation Management." With the belief that "surprises" can be kept in check when all stakeholders maintain realistic expectations, I have directed my Program Executive Officers (PEO) to identify program changes in a timely fashion, no matter what their source, communicate those changes to leadership and then drive new expectations. We can no longer allow changes in funding, requirements, or even schedule without documentation and stakeholder agreement on just what the effects on the program will be. Under the Expectation Management policy, we will no longer "just work it out later." When fact-of-life changes occur, we will honestly assess the impact, document it, and along with all stakeholders, collaboratively agree on a way ahead.

In addition to the operator-acquirer collaboration already discussed, we have also this past year fostered similar collaboration with the test community. Major General William Peck, Commander Air Force Operational Test and Evaluation Center (AFOTEC), and I have signed out a policy that calls for "Seamless Verification" of our modernization programs. Seamless Verification is designed to eliminate the seams between contractor, developer, and operational testers. It requires the warfighter, contractor, developer, and operational tester to collaboratively develop, test and evaluation activities with the goal to produce efficient schedules and reduce risk of program failure. These requirements are being codified into the test community's Capabilities Based Test and Evaluation instruction in the same fashion as was done with the acquisition and operational instructions discussed above. The Small Diameter Bomb acquisition will be a pilot program for Seamless Verification.

Having turned policy into action, I expect these collaborative environments to produce real results as we execute the task of capability-based acquisition. It would not by itself develop technology any quicker, but should reduce the risks associated with misunderstanding and unrealistic expectations.

SYSTEMS ENGINEERING

Last year, I identified the need to re-instill an adequate systems engineering foundation within the acquisition process. Systems engineering is one of the bedrocks of acquisition management because it ensures that contractor-proposed solutions are consistent with sound engineering principles. It is all the more critical because of the Air Force-adopted spiral development approach to acquisition that incrementally delivers weapon system capability quickly and hedges technology risk. We must have the capability to smoothly proceed from one spiral effort to the next. I implemented a process to ensure Milestone Decision Authorities adequately review the proposed approach to systems engineering prior to approving Acquisition Strategy Plans. I also demanded that system-engineering performance be linked to contract award fee or incentive fee structures.

To be clear, the system engineering approach used by the AF and our industry partners must focus on an end state that quickly delivers high-quality, best value products (capabilities) that fully meet the warfighters' need, and are designed to easily and inexpensively accommodate growth of capabilities in subsequent increments. In January of this year, I signed out Increment 2 of our new "Revitalizing Air Force and Industry Systems Engineering" policy. The intent of this latest move is to institutionalize key attributes of an acceptable system engineering approach and outcome across the combined AF/Industry enterprise. For example, we have generated appropriate language that should be included into key acquisition documents such as solicitations, award fee plan/incentive fee contracts, and other contracts. I have further directed that this language, which is intended to be an exam-

ple and not boilerplate, be incorporated into governing acquisition instructions. Our hope is to see meaningful progress within the next 18 months.

PROGRAM STABILITY AND EXECUTION

While funding stability is an age-old problem that in many cases is beyond our control, there are measures nonetheless that we have undertaken to improve our ability to manage the instability and also ensure accountability for program execution. One way of better dealing with instability, for example, is through informed decisionmaking. As I have already discussed, increased collaboration, expectation management, and formal exchanges like the CPER should allow us to collectively make decisions that provide the best use of limited resources, given the annual ebb and flow of funding profiles. Another way of handling instability more efficiently and credibly is through improved acquisition program management.

I have spent a great deal of time this past year working with the Commander of the Air Force Materiel Command, General Gregory Martin, on a plan to realign and relocate our Air Force PEO. I am very proud to report that this plan, which is designed to clarify lines of responsibility and increase the speed and credibility in acquisition programs, is proceeding on schedule. In October of last year, we took the first major step of Phase 1 of this realignment when the PEO for weapons moved from the Pentagon to Eglin Air Force Base. Major General Robert Chedister, who is also the commander of the Air Armaments Center, is now the PEO, backed up by an acquisition execution deputy. Similar moves were subsequently made for the Aeronautical and Electronic Systems Centers at Wright-Patterson AFB, OH and Hanscom AFB, MA respectively. Phase 1 of this realignment is now complete and the PEOs are responsible for the PEO programs as well as those smaller, previously designated "Designated Acquisition Commander" programs, that have been mapped into their portfolios. There are important details still remaining to be worked, but we have already gained a lot of momentum in the right direction: improved ability to manage limited resources and improved accountability for program execution.

Assisting us in working out these details now is an overarching game plan, or Concept of Operations (CONOPs), that General Martin and I agreed to last December. This CONOPs will govern the acquisition roles and responsibilities between the Office of the Assistant Secretary of the Air Force for Acquisition and the Air Force Materiel Command. The very success of efforts such as the ones already discussed often finds itself in the details, and the agreed-to CONOPs will go a long way toward fostering the kind of mutual support and can-do effort that will ultimately make Agile Acquisition a success.

IMPROVED COST ESTIMATING

A final area that I introduced during testimony last year was the problem of faulty cost estimates. I had implemented a policy whereby acquisition programs be designed to a 90-percent confidence level. Since, we have convened two Integrated Product Teams (IPT) to consider how we might go about achieving that improved confidence level. Within our contracting division, we are considering how better-incentivized contractors might produce more realistic proposals. Also, in conjunction with the Air Force's Financial Management Directorate, the Government Most-Probably Cost IPT also seeks methods to establish and sustain better budgets through incentivized cost estimates. Clearly, in order to improve our credibility with the warfighter and facilitate better investment decisions, we need to produce better cost estimates up front. I look forward to receiving the results and recommendations of these IPTs in the next few months.

LEVERAGING SCIENCE AND TECHNOLOGY (S&T) INVESTMENT

The Air Force remains committed to an S&T program that enables us to achieve our vision of becoming an integrated air and space force capable of rapid and decisive global engagement. By continuing our investment in transformational technologies that support a reduced cycle-time, spiral development acquisition process, the Air Force will retain its dominance of air and space in future conflicts, against both traditional and asymmetrical threats. It is a part of the Air Force's proud legacy to be on the cutting edge of technology, and S&T programs have historically been a major contributor to its superior warfighting capability.

During this past year I entered into an agreement with the Commander, Air Force Research Laboratory (AFRL), Major General Paul Nielsen, to improve the timeliness of advanced technology transition from the laboratories into acquisition programs. Similar to the other agreements I have discussed, this one begins with new levels of collaboration and communication. It calls on the AFRL to establish a broad-based initiative to focus and accelerate its technology efforts in support of

warfighting capabilities. The initiative includes a capability-based investment strategy, systems engineering, collaborative portfolio reviews, and an annual assessment of the progress and results of this initiative.

Steady investment and rapid transition will support the current preferred acquisition strategy of spiral development. Most, if not all, of the programs to be discussed below, unmanned aerial vehicles, propulsion systems, munitions, aircraft structures and materials, have all been touched by Air Force S&T. Under Agile Acquisition, the goal is to bring these technologies to warfighting success stories faster and more efficiently than ever.

TECHNOLOGY TO WARFIGHTING SUCCESSES (SELECTED PROGRAMS)

F/A-22

We are extremely pleased with the progress of the F/A-22 program this past year. With its revolutionary combination of stealth, supercruise (i.e., cruise above 1.5 mach without afterburner), maneuverability, and integrated avionics, the F/A-22 is living up to its promises. The advertised capability is here now—it is no longer just a test program. Our focus is clearly on providing proven capability to the Nation's warfighters soon.

One year ago, we had 16 missile shots completed. Today, after over 5,000 flight test hours there have been 47 successful missile shots (12 guided, 35 separations), and both the flight envelope and weapons envelope are cleared for Initial Operational Test & Evaluation (IOT&E) start. The program has made tremendous strides improving avionics stability—the issues today are not the same as they were a year ago. Total system reboots no longer occur. The program incorporated full functionality required for operational test and simultaneously improved overall stability more than tenfold. The development program is now nearly complete with all necessary events to proceed into IOT&E; and we now anticipate a full-rate production decision in December 2004.

At this time last year, we had only delivered 3 production aircraft, compared to 13 to date. While deliveries have lagged, we know much more about the manufacturing processes than we did a year ago. Experience gained with these 13 production Raptors allowed both Air Force and Lockheed-Martin production experts to complete an end-to-end production process proofing and schedule re-baseline in December 2003. The joint government and contractor team addressed leadership, manufacturing processes, tooling, and parts reliability. They identified 171 quality corrective actions, 120 tool improvements, 17 major producibility improvements, and corrective actions for 68 high failure rate parts. The time needed to implement these improvements is built into the re-baselined delivery schedule, and we are about 40 percent through the implementation plan. As we continue through Lot 2 and Lot 3 final assembly, we will fully realize the benefit of these improvements. We now have a credible schedule, and the Air Force is confident we will recover to schedule before Lot-4 deliveries—December 2005 initial operational capability (IOC) will not be impacted.

In fact, Raptors are now operating in three locations. Ten jets assigned to Edwards Air Force Base (AFB) are wrapping up developmental test and are well into operational test. At Nellis AFB, five Raptors are developing operational tactics and techniques. At Tyndall AFB four jets, and counting, are training pilots today. Additionally, the first operational jet will arrive at Langley AFB in November of this year. Through a year of perseverance and teamwork, IOC is now clearly within visual range, and the Air Force is now postured to deliver this transformational capability as anticipated.

F-35

Acting in concert with the F/A-22 will be the F-35 Joint Strike Fighter (JSF). The F/A-22/F-35 force mix will balance affordability, capability and force structure—critical capabilities for the Global Strike concept of operations—to ensure sufficient quantities of advanced fighter aircraft to give the U.S. dominant force across the full spectrum of conflicts.

Over the past year, the JSF program has experienced some challenges, most notably achieving weight goals, but the government-industry team has taken aggressive measures to ensure program success. In fact, the Conventional Take-off and Landing, and Carrier Variants of the aircraft are still projected to meet all of their Key Performance Parameters, while plans are already in place to ensure success with the Short Take-off and Vertical Landing variant.

In spite of these challenges, the F-35 acquisition program has also achieved several milestones during this past third year of System Development and Demonstration (SDD). These include the Air System Requirements Review, the Integrated

Baseline Review, and the Air System Preliminary Design Review. In addition, the program was ahead of schedule for the First Engine To Test milestone, and we have over 200 hours of successful operating time on 2 test engines.

As the Air Force assumes responsibility for execution of the JSF program later this year, it will apply all of the appropriate Agile Acquisition initiatives to effectively address and overcome weight issues. With all that is riding on the department's largest cooperative development program, we will deliver.

JOINT AIR-TO-SURFACE STANDOFF MISSILE (JASSM)

The JASSM is a "kick down the door" type weapon to be used in the early stages of a war to neutralize enemy's defenses and war infrastructure by targeting high value, fixed and relocatable targets. Last year, there was concern among some members about JASSM's performance during test that ultimately resulted in a reduction in fiscal year 2004 production funding and direction to maintain Low Rate Initial Production (LRIP).

Since then, all JASSM test programs, developmental and initial operational test, have been successfully completed. All issues identified during these tests have been or are being addressed. Furthermore, the Air Force is confident that all fixes have been verified in testing or will be verified with follow-on test. In fact, AFOTEC rated JASSM "Effective and Potentially Suitable," with the major issue affecting suitability being mission planning time. The introduction of a PC-based tool is in work and will reduce the mission planning time and meet requirements. As a result of this past year's success, the Air Force believes all criteria to enter full rate production have been met; however, a final decision will be made after release of the Beyond LRIP report and its subsequent receipt by Congress.

Also of note, last year witnessed the start of a JASSM-Extended Range (ER) program. JASSM-ER is a solid example of the preferred spiral development approach that delivers incremental capability to the warfighter sooner than later. JASSM-ER will increase the range capability to greater than 500 nm without changing the outer mold-line. In fact, with a contract award in February of this year, Phase 2 is already underway, leading to ground and flight test in fiscal year 2005.

B-2 AND JOINT DIRECT ATTACK MUNITION (JDAM)

In September 2000, the Chief of Staff of the Air Force directed the development and integration of a 500 lb. JDAM capability on the B-2 Spirit using "Smart" Bomb Rack Assemblies (SBRA). The SBRA program is a key warfighting enabler that improves the B-2's persistent precision engagement capability. It increases the B-2 guided weapon capability to 80 independently targeted, smart weapons.

Last fall, the Air Force successfully demonstrated the power-up, data transfer, launch, and impact accuracy of 80 independently targeted 500-lb. JDAM munitions at the Utah Test and Training Range. In practical terms, this translates into the capability to destroy an enemy airfield in a single pass or attack up to 80 targets on a given sortie. More significantly in light of today's testimony is this program has exceeded performance requirements, is under budget, and is on schedule to meet the Air Force Chief of Staff's "Required Assets in Place" deadline of November 2004.

The JDAM program also reached a milestone of its own recently. During recent operations, JDAMs were being used at rates up to 3,000 per month. In order to prevent exhaustion of Air Force inventories, the JDAM program was challenged to increase its production rate from a pre-September 11 rate of approximately 750 per month, all the way to 3,000 kits per month. Last month, the JDAM production line achieved a monthly output rate of 3,000 units. This happily reflects the determination and effort on the part of our highly successful contractor-government acquisition team and in turn, the principles of Agile Acquisition. For these sustained efforts, the government-industry JDAM team was recently named winner of the 2004 William J. Perry Award by the Precision Strike Association at its Winter Roundtable meeting and recipient of Aviation Week's 2004 Quality Center Award. The Perry award is presented annually to the public or private sector for outstanding leadership or technical achievements resulting in significant contribution to precision strike systems. The Aviation Week award identifies and celebrates quality, manufacturing excellence, R&D innovation and other best practices in the civil, military and space sections.

SMALL DIAMETER BOMB (SDB)

SDB will provide fighter and bomber aircraft with a tactically significant standoff attack capability from outside of point defenses against fixed targets, while increasing loadout and minimizing collateral damage. Last year I reported that the SDB

acquisition program was in the middle of a competitive 2-year concept development phase. As promised, that effort culminated in a highly successful down-select decision in September of last year. SDD is now well underway and the program is on schedule to enter LRIP in May 2005.

The program down-select decision and subsequent negotiations provided great news for the warfighter because the result was a weapon system average unit cost that met warfighter cost goals and an overall acquisition program that is meeting its other requirements. The success of last year's negotiations will allow the Air Force to consider a second developmental spiral of the SDB to provide a moving target attack capability.

GLOBAL HAWK

A key enabler to the tactical engagement, Global Hawk utilizes conventional technology operating at altitudes up to 60,000 feet for up to 30 hours to achieve on-demand, long-dwell Intelligence, Surveillance and Reconnaissance coverage of up to 40,000 sq nm per day. During OEF and OIF, Global Hawk flew 79 combat sorties and collected over 21,800 images. In OIF, building on lessons learned from its previous deployment, Global Hawk flew 5 percent of the high-altitude reconnaissance sorties, yet accounted for 55 percent of the air defense equipment time sensitive targets. It is remarkable warfighting capability for a weapon system that has not yet reached IOC. In fact, following extremely successful demonstrations in their two countries, Australia and Germany are entertaining plans to acquire their own Global Hawks.

The Global Hawk program acquisition strategy also exemplifies the preferred spiral development strategy. The successful capability in use today will be subsequently upgraded to include increased payload, a signals intelligence collection capability, and the multi-platform radar technology insertion program (MP-RTIP) for enhanced Ground-Moving Target Indication/Search and Rescue capability (GMTI/SAR).

PREDATOR

First deployed in 1995 for operations over Bosnia, Predator continues to be employed as the most responsive sensor throughout OEF and OIF. We now have over 75,000 flying hours on this system with over 22,000 this past year alone. OIF was Predator's first "networked" operation. By using both in- and out-of-theater control stations with beyond line-of-sight aircraft control, we provided the Combined Forces Air Component Commander (CFACC) additional capability and redundancy to simultaneously control five aircraft over the battlefield, three of which were controlled via reach-back from the United States. This combined reach-back operation allowed our units to increase their operational flexibility, more efficiently manage manpower, minimize forward footprint, and reduce our high operations tempo. Moreover, of interest to some members, Predator has extended its success this past year by providing tactical imagery directly to ground combat forces and by providing targeting information to AC-130 gunships. As has been noted in previous hearings, this capability can greatly enhance force protection, situational awareness and our ability to rapidly engage targets.

By arming MQ-1 Predator A we now have a very long endurance platform that can find and engage time critical targets. Additionally, we have recently begun enhancing the aircraft to perform better at higher altitudes, increase aircraft endurance, and increase available payload electrical power.

Most noteworthy is our development of the MQ-9 Predator B 'Hunter-Killer' aircraft which will be capable of automatically cueing and prosecuting critical emerging time sensitive targets with a self-contained, hard-kill capability to include precision-guided munitions. This will provide a persistent, armed reconnaissance, multi-mission, remotely piloted aircraft (RPA), operating higher and faster than the MQ-1 and with a greatly increased payload capacity.

CONCLUSION

Over the past year, we in Air Force Acquisition have made great strides in institutionalizing the changes we believe are necessary to achieve the vision of Agile Acquisition: delivering what we promise when we promise. This stems from our ongoing commitment and contributions to the Air Force's core competency of transitioning technology to warfighting. Given the ever-present need to invest our limited resources efficiently and effectively, we must succeed in our endeavors.

I appreciate the support of this committee and today's opportunity to make part of the record some of the great things that are happening in Air Force Acquisition.

Senator SESSIONS. Thank you very much, Secretary Sambur and General Keys. We thank you for your service and your assistance with this presentation.

Last year, we did, in this committee, cut two Raptor aircraft, and we questioned the schedule and how far behind they were. This was restored in conference, although there was a modest reduction in funding, \$160-some-odd million. When you were testifying last year, Secretary Sambur, you were projecting that the F/A-22 would not begin its dedicated initial operational testing until October 2003, a delay that was necessary to work on software stability issues. The subcommittee understands that those have been recently solved, and you indicated in your statements that they are. How confident are you that this is what we need? Are we where we need to be, or do you expect further improvements in the software?

Dr. SAMBUR. We will have further improvements. We are above the threshold with the latest software release. We are making one more release before the start of IOT&E, and we expect the software stability to increase even further.

Right now, on the metrics that you want from us, the mean time between critical software anomalies, we are close to 20 hours. When you look at another metric that says the total mean time between avionics anomalies were approximately 6.1 hours, which is above the 5-hour threshold.

Senator SESSIONS. So we are comparing apples to apples.

The threshold that was expected, the 5 hours, has been exceeded, according to—

Dr. SAMBUR.—factor of four. The threshold that you have asked us for is the mean time between critical anomalies, type one, when you have to shut down the system, and that is almost at 20 hours. When you look at all anomalies, we are at 6.1 hours mean time between those events, which is still above. So we're very confident. As I read in my statement, the acting Under Secretary for AT&L was "very encouraged," and he also indicated that there was no impediment to starting in April. We did miss the October date, but we were always, as we said before, event-driven. We're pretty confident about this April date.

Senator SESSIONS. All right. Now, I understand the Defense Acquisition Board met Monday?

Dr. SAMBUR. Monday.

Senator SESSIONS. They determined the readiness to enter the test phase. Where are we on that? What can you tell us about that?

Dr. SAMBUR. As I indicated, the AFOTEC director said, from an effectiveness point of view—and I gave you some examples—he was "very impressed." There are some issues with maintainability and sustainability that we have to finalize. We have to, for example, really define the trajectory that is required during IOT&E. The key performance parameters talk about sortie generation, for example, at the hundred-thousand-hour point. However, we will not be there at IOT&E, and there needs to be some metric to guide us. We are in the process of formulating those metrics.

We will get there in the April time frame. We just need to finalize those metrics, do some more training for the pilots and for the

maintainers, and do this last software lot that I talked to you about just recently.

Senator SESSIONS. Now, is there a specific event that allows official testing to begin?

Dr. SAMBUR. Now, that is a decision that we will make in the Air Force in consultation with AT&L, but it involved the metrics——

Senator SESSIONS. AT&L is what?

Dr. SAMBUR. Acquisition, Technology, and Logistics. That is the Department of Defense (DOD) OSD-level of management oversight. They have asked us to, first of all, certify that we are meeting the avionics stability that is required.

Senator SESSIONS. You have not done that yet.

Dr. SAMBUR. We need to get a few more hours. The measure I talked about before is over three or four jets. We will now do this analysis over several other jets to give you a certified number. That is within a matter of weeks. There should not be any difference between the jets, but we want to make sure that the stability is there, and we want to be able to come back and certify that the numbers that I just talked to you about are truly what we're achieving. We are also looking to make sure that we have the right training for the pilots and for the maintainers to start IOT&E so we can be successful. We do not want to start something and fail. We want to be event driven and start something that will pass first.

Senator SESSIONS. Maybe Senator Lieberman also would like to inquire about that.

I would note that last year you testified we were eight aircraft behind, and you produced a new delivery schedule——

Dr. SAMBUR. Right.

Senator SESSIONS.—that would catch up to the contractual deliveries by this June, although we have seen a lot of improvement. The committee staff has gone to Georgia to see the facility and was impressed. I was supposed to be there, with Senator Chambliss, but the weather got me, and, in a matter of minutes, we could not take off and be there. We understand that things are improving on the production line, but the deliveries are still behind, as I understand it, seven aircraft. The projected date for catching up has now slid to December 2004. This is at least the fourth schedule given to us by the Air Force in as many years, yet we are still a significant number of aircraft behind. What is the schedule? How confident are you about it?

Dr. SAMBUR. You picked it exactly right. We are as frustrated as you are, and we are certainly making sure that Lockheed is doing everything possible to put in the producability enhancements necessary to get us back on schedule. We created for you a more confident schedule. The last couple of deliveries, we have been very close to that schedule. The last one, we have missed it a little bit. We are constantly trying to manage that. We are as concerned as you are.

Senator SESSIONS. Let me see if I can get this straight now. When we say, by your goal, December 2004, does that mean you will eliminate the entire backlog and be on schedule?

Dr. SAMBUR. That is to be on schedule with the original schedule.

Senator SESSIONS. Catch up the seven that you are behind.

Dr. SAMBUR. Catch up the original schedule.

Senator SESSIONS. That is a big leap. Is that really a practical thing to expect?

Dr. SAMBUR. Actually, things are starting to move in the right direction. What has happened here is, not only have we looked at producability improvements, but also Lockheed Martin actually brought back a whole host of experienced manufacturing pros, who were with them at the beginning with the F-16. They brought back several people from retirement who had a tremendous skill base, who are actually managing the program on a day-to-day basis now. These people have the expertise to turn this around. They have demonstrated the expertise. But, more importantly, we have put in place processes that were lacking before that will get us back there.

We have put together a more credible schedule. Is it perfect? Is it exactly the schedule that will be exactly pinpointing every delivery? I do not think so. But is it moving in the right direction? Yes. Will we make every delivery? Again, I do not think so. But will we get back on schedule by the beginning of Lot-4? We are quoting a number of about 95 percent confidence on that. The reason for that is that we have actually added margin in the schedules; we have actually looked at past performances to try to extrapolate, so we are reasonably confident that we will get there at the end of the day. We are not reasonably confident that every delivery will happen on time, but we are reasonably confident that we put in place the right processes, and we now have the right management team, both within the Air Force and at Lockheed Martin to really turn this program around.

We have demonstrated that on the development program. Last year, we were in horrible shape, as you read in your statement. Now we have really turned that around. The software stability was less than 1 hour on—the number I am talking about is now almost 20. There has been improvement.

Senator SESSIONS. That was a very troubling thing last year.

Dr. SAMBUR. It was.

Senator SESSIONS. I remember. That is a remarkable improvement.

Dr. SAMBUR. Exactly, troubling. As your staff has indicated, if you go to the factory there, you can see an amazing improvement, amazing improvement in the attitudes of the people, even in the cleanliness of the facility. It is just dramatic.

We will get there. Will we be perfect? No. But we will get there at the end of—or at the beginning of Lot-4.

Senator SESSIONS. Senator Lieberman.

Senator LIEBERMAN. Thanks, Mr. Chairman, and thanks again to all of you.

Secretary Young, I wanted to take up an aviation program that we have not talked about today. It is of national and local significance in my case, which is the decision that you announced yesterday to delay a decision on the presidential helicopter. Obviously, Sikorsky is actively interested, since the helicopter has been made there since the late 1950s. I wonder if you would just take a moment to describe why the decision was made. Does it indicate any fundamental concerns about the program? What is the time frame now in which you hope to make the final decision?

Mr. YOUNG. We have always recognized, from the beginning, that this program is very challenging. The requirements to enhance the survivability, achieve the range and payload that the White House desires, and also provide the communications suite that is necessary for the President to remain connected, is a pretty daunting challenge in a helicopter.

Having said that, there is great urgency to replacing the fleet right now, which does not adequately support the President. We embarked on an aggressive program; we issued our request for a proposal, in December, and had targeted award of a contract at the end of April.

As we have gotten the initial proposals, we have recognized that industry understands our requirements, but we need greater dialogue with them on where are the trade spaces, and what aspects of those requirements are driving costs and schedule. We need to be more confident that they can deliver the product they have outlined. You are potentially aware that both helicopters to meet the requirements have to change the engine variants in the helicopters, so there are substantial things that need to be done. In a bigger context, we typically would take on the order of 12 months from a release of an RFP to a contract award, usually in programs like JSF and DDX, supported by 2 to 3 years of demonstration efforts and probably engineering models. We do not have that behind us on VXX. We do have existing risk-reduction contracts that we plan to extend and augment to work through several of the issues on the survivability equipment, the cockpit equipment, analysis of the engine changes and how comfortable we are with their ability to do that, and achieve the performance they have advertised.

All of these things make me uncomfortable, consistent with what I said at the beginning, that we can award a contract and sign that contract to terms and conditions and with incentives that everybody can go into with a high confidence we can deliver to. So I would finish by saying, at the end of this year I will be more comfortable about recommending to you, to the White House, and to Secretary Rumsfeld that we can make a defensible and high-confidence source-selection decision and lay out a program that we can deliver for the cost we tell you.

Senator LIEBERMAN. Okay, so you hope to be in a position to make a decision by the end of the year.

Mr. YOUNG. Yes, sir. We had asked the program executive officer and the program manager to talk to us about what things need to be done in this extension of the risk-reduction program and see how that ties with letting the companies update these initial proposals and the additional data and definition we need to make the decision and proceed.

Senator LIEBERMAN. Very good.

I appreciate that. Here, again, there obviously is a pressure of time, because of the current threat and the security environment we are in, we want to make sure that this is the best possible. But you have to do it right. So we will be following that carefully.

Secretary Young, the Marine Corps variant of the Joint Strike Fighter, the STOVL, I gather may now be coming in overweight by as much as 3,000 pounds. Obviously, weight is much more of a concern for these aircraft, since the added weight for the STOVL flight

profile will probably reduce the payload or the range, or both. I wanted to get your assessment.

First, am I right that it is now coming in that much overweight? Second, what is your overall assessment of the current situation regarding the weight, generally, on the Joint Strike Fighter?

Mr. YOUNG. You are exactly correct, Senator. The bottom-up number-four estimate projects the STOVL could be a little over 3,000 pounds heavy. The company and the program office have a path to reduce that weight. Within that weight, there is also a margin that they hope to not realize, but we have some margin that is not all known weight. We have a plan to go down a path and achieve a weight that could be as much as 2,300 pounds over.

Senator LIEBERMAN. Excuse me for interrupting—this is a substantial percentage of the overall weight of the plane, right?

Mr. YOUNG. The empty target weight for the STOVL is 32,850 pounds, and we are on a path that could lead us to be 2,300 pounds over that.

Senator LIEBERMAN. Right. Now the concern is it may be 10 percent over. Is this because we have added requirements as we have gone along?

Mr. YOUNG. Candidly, I do—we have not changed the requirements. Requirements-creep is a very fractional issue here, both in terms of dollars and weight. I think what I have said to try to arrange this in my own mind is that—from the concept demonstrators that flew at roughly weights of 27,000 to 29,000 pounds with limited structural life and no avionics—we projected to, in 4 years, and at only about 3,500 to 4,000 pounds more weight, have a full-up operating plane with a 30-year life. We were more optimistic, maybe, than we should have been in time and in design. So we have had to allow ourselves an additional year to work on those designs and try to get the weight down closer to those IFC capabilities.

I want to emphasize, the CTOL and the CV variants are somewhat heavier, a little over 1,400 pounds, roughly, both of which meet their key performance parameters, and both of which are green, maybe with a little margin, in some cases, on their specifications. STOVL cannot be bought at its current weight, and we have to take the time. It was right to make a decision, to work all the designs to reduce the weight to get more capability and growth margin for the future. So a team is attacking them in sequence. CTOL, the lessons we learned on the conventional takeoff for the Air Force, will be applied to the STOVL Marine variant, and hopefully all three planes will come in at lower weight and have greater growth margin.

Senator LIEBERMAN. Going back to something I said in my opening statement, is it fair to say that you are committed to doing this on an event-based schedule, as opposed to calendar driven? I know there is always pressure to go as fast as you can, but to get this right?

Mr. YOUNG. The first executive-level illustration I could give you is that we could have held the CTOL and CV schedule, and there would have been some goodness, and possibly less cost in that. The decision was made to get greater capability and, as you said, let success in achieving weights and maturity of the design drive the

program to its appropriate points for first flight, and the low-rate production, and other steps.

Senator LIEBERMAN. Mr. Secretary, let me ask you if there are lessons that you feel we have drawn from some of the problems we have had with the Raptor, with the F/A-22, in terms of development, and getting it through development and into testing, that will help us with the Joint Strike Fighter program.

Basically so we do not make the mistakes and missteps.

Mr. YOUNG. The dominant responsibility lies with Lockheed Martin, and the company is aggressively trading lessons learned between the two programs. I would further highlight the specific examples that people have learned from all tactical aircraft programs. We have margin and time for software development. We have approximately 40 percent of the initial 1.8 million lines of software in tests now to support the A-1 flight test. The first engine to test occurred in October. There were delays in several other programs on getting a first engine to test. The STOVL lift system will go to test this April, next month.

So we have started to do things earlier in the process, including paying attention to software and other issues that are long poles in the tent, so to speak. The program—this program, relative to almost any other program in the Department—has well-laid-out structure, as you both noted. Last year, we knew we had to continue to work weight. We are continuing to do that. The team is achieving some success. We need some more time to get an optimal product, because this program will be three Services and over 2,000 airplanes.

A hasty fix might not be the right fix, so we are at, unfortunately, a cost-making decision to get it right.

Senator LIEBERMAN. I appreciate that. It is the right decision.

Secretary Sambur, in 1997 the Air Force, long before you were where you are now, testified to this subcommittee that annual operating and support costs for the F/A-22 would be about 50 percent cheaper than those for the F-15C that it was intended to replace. I feel a responsibility periodically to ask, how are we doing on that prophecy? In other words, what are your current estimates of what it will cost to operate the F/A-22 aircraft?

Dr. SAMBUR. I will have to get back to you for the record. I do not have the exact number. We will get back and give you the exact number for the record.

[The information referred to follows:]

In fiscal year 2001, the Air Force completed an FA-22/F-15 comparative operation and sustainment (O&S) estimate. This estimate calculated the F/A-22 Average Annual Cost per Squadron to be 28 percent less than the F-15C. The Air Force is updating this O&S estimate to support the fiscal year 2006 PB build. Later this year, the Air Force will also calculate a new Service Cost Position (SCP) to support the F/A-22 Full Rate Production (FRP) decision. As part of the SCP, the Air Force will re-compute the F/A-22 O&S predicted average annual cost per squadron. The Air Force plans to complete an analysis comparing the F/A-22 to the F-15 O&S average annual cost per squadron prior to the FRP decision in December 2004.

Senator LIEBERMAN. Fine. I would welcome that.

Let me ask you a different kind of question, Secretary Sambur. In the statement you have submitted for the record, you refer to your realignment of the program executive officer structure within the Air Force, in which you have the Warfare Center commanders

double-hatted as the program executive officers. I want you to speak—to take a look at what you have done, in the historical context, which is to say that Goldwater-Nichols removed the system's command officials, including the Warfare Center commanders, from the acquisition chain of command, in order to streamline that chain of command and to have the program executive officer spending full time on the important acquisition programs of the Services. It is not to say that everything in Goldwater-Nichols was perfect and never should be changed, but this does look like a step away from that vision. I wanted to ask you to comment on it, and, more specifically, whether you are concerned that the attention of the program executive officers is going to be diluted by their day-to-day activities, to the detriment of Air Force acquisition management.

Dr. SAMBUR. You ask a very good question. When we made the initial attempt at doing this, I was very much concerned about exactly the issues you talked about. But what I made sure of is, at the end of the day, the PEOs, or the center commanders, were reporting directly to me for acquisition, and acquisition was defined as their dominant task. The base support and training and ops was really aligning to a deputy underneath them, so their dominant attention, the center commanders', was on acquisition. The reason we did that was to break, in a sense, the conflict between having the people that were doing the program reporting to a center commander who was not in the acquisition loop. By getting him now in the acquisition loop, and being accountable primarily for acquisition, we got everybody's attention. That was the real benefit of this. Everybody is now working together on a common goal.

Senator LIEBERMAN. Were you aware of the Goldwater-Nichols history?

Dr. SAMBUR. Probably not in the details.

Senator LIEBERMAN. Yes. Take a look at it, if you would.

Dr. SAMBUR. I will.

Senator LIEBERMAN. As you continue to evaluate the changes you have made, I hope you will keep that in mind. I will be interested in hearing from you periodically about how it is working.

Dr. SAMBUR. I will do that.

Senator LIEBERMAN. Mr. Chairman, I have other questions, but I am going to yield; and if you have a second round, I will get back to them.

Senator SESSIONS. We certainly will.

I wanted to follow up a little bit on the weight problem for the STOVL on Joint Strike Fighter. As I see the numbers on the chart I have, it shows a 3,400-pound overweight.

Mr. YOUNG. It is a bottom-up four-number estimate.

Senator SESSIONS. That's about—

Mr. YOUNG. A couple of months ago, I think.

Senator SESSIONS.—a little more than 10 percent. Right, now taking 10 percent out of a aircraft is a chunk. Is that realistic, to think we can achieve that? How serious a problem is that?

Mr. YOUNG. It was serious enough that we took the time to work the design. The company has tabled options that can take all of that weight out, and potentially even get them below the IOC weight. You have to assign a risk to whether they can achieve those weights or not. As I have pointed out, there are 700 to 800

pounds of planned growth in those numbers. There is a path to take weight out of the program. We really need to spend time—you had initial layouts, and now we are doing detailed designs of parts. An engineer decides to make a part a certain thickness, and then you can build that part, test it, stress it, and decide whether you can take some weight out or not. Then as we have designed this plane to be produced, people have made some conservative assumptions to make sure it is easy to assemble. We need to go back and look at those assumptions and see if they have added significant weight for the ease of producability at the expense of performance.

We do not want to under-design the plane. I want to be clear about that. Secretary England and Secretary Roche's guidance to us is to be careful, and then think through where we are at the end of that. Those decisions will get as much weight out as we can, and then look at how we are going to operate the jet. There are certain things we can make choices about, like takeoff at higher horizontal tail and flap settings, and recover—or fly successfully at a slightly heavier weight. Then we look at requirements adjustments or other things.

That is the last thing on the list.

Senator SESSIONS. So that is all well and good, but I guess what I am saying to you is, do you remain confident that this is a matter that is not going to be a significant roadblock to the eventual effectiveness of this aircraft?

Mr. YOUNG. Performance potential of the aircraft is significant, and the company has paths that are very credible and laid out in detail so we can achieve that weight. We need to spend some time, and I assure you we will.

Senator SESSIONS. Who is eating the cost of this? Is it the contractor or the Defense Department that is having to pay the cost of getting this overweight down?

Mr. YOUNG. It is a cost on the contract, sir, and the Defense Department is paying the costs. Frankly, the Defense Department was a key—made the decision to extend the program for a year and take the time to get the designs to a better performance level and lower weight.

Senator SESSIONS. I am not sure I got my answer. Now, you are confident that we need to plan on this aircraft being in the inventory, to do what the STOVL is expected to do, and it is just a matter of a delay, some delay, in working out this weight problem.

Mr. YOUNG. I hesitate to guarantee you, but we have laid out very detailed plans to adjust this design. We have options to change how we operate the plane so that STOVL will be extremely effective for the Marine Corps.

Senator SESSIONS. Secretary Sambur, you will be taking over this program soon. Do you have any comments to add?

Dr. SAMBUR. I would just add to what Secretary Young talked about, that this is a multi-faceted approach. As you correctly surmised, taking out 10 percent of the weight is really a Herculean task. We are looking at other things, such as increasing the engine capabilities, looking at concept of operations (CONOPs) changes, and all of these facets. We have a program plan that will get us to the ultimate goal, which is not weight, but meeting the key per-

formance parameters. Weight is an indication of being able to meet that. But, in and of itself, there are other ways of getting there.

So the ultimate goal is meeting the key performance parameters. Weight is one of the aspects of getting it, but there are other things we can do—engine and performance enhancements, CONOPs changes.

Senator SESSIONS. Right. Now, we have already gone from, what, \$33 billion to \$40 billion, a \$7 billion increase in development costs for the program. Is this a big part of that? Can we expect to see more cost as a result of this?

Dr. SAMBUR. I will just tell you that my experience on the F/A-22 has indicated the most stressing part of the program is when you enter integration, and that is yet to come. We have tried to do everything to minimize the impact of that, but that is always the most difficult part of the program when you start putting everything together. The software has to go together, all of the aspects, and that is yet to come. So I would tell you that we have tried to give you a legitimate estimate of the cost impact, but there may be more to come.

Mr. YOUNG. Could I emphasize that in making that decision, though, some key points that you may have heard were funded assuming that 50 percent of the things that could go wrong went wrong, and 50 percent did not. In adding this additional year, and agreeing to spend additional funds, we now funded 80 percent of the things going wrong that could go wrong, and we only have to be lucky on 20 percent.

We have added, based on the lessons of F-22, additional inefficiency assumptions, if you will, about how fast we can generate software code, as well as adding additional funds and time for the generation of software code. So in several of the risk areas that we have seen, as I said, on other tactical aircraft, they were addressed by this painful decision to increase the price and extend to \$40 billion—and the program a year.

Senator SESSIONS. All right. Just briefly, let me ask you, the Defense's cost-analysis improvement group estimates it will take \$11.7 billion to basically convert the F-22 to an attack aircraft. Is that figure correct? Does the Air Force concur with that, Secretary Sambur and General Keys?

Dr. SAMBUR. No. We have actually built into the F/A-22 program a series of spirals. The next three spirals, up to spiral 3B, which includes JDAM, small-diameter bomb, radar and sensor improvements, have already been budgeted and are in the program. We are budgeted at \$3.5 billion. The fourth spiral contains a lot of wish-list types of items, things that we are dreaming about, we may not ask for. So the \$11 billion number that has been quoted really contains—you can go into a house, and you want to put everything under the sun in here. We are not thinking of doing anywhere near that.

The plane, at the end of IOC, is a very capable air-to-ground aircraft. It will have subsonic JDAM. When we finish spiral 3B—and General Keys can add to this—we will have a incredibly good plane. You might want to add to that, General Keys.

General KEYS. No, we believe the program, as it is budgeted now, gives us an airplane that will be a world-class air-to-air and air-

to-ground platform. That money is in there. Now, beyond spiral 3B, the money is not in it. We have a number of programs that we are looking at, to increase the sensors, increase some of the capability of the weapons, but we have not yet put them into the program.

Senator SESSIONS. You do not expect \$11 billion above this number.

General KEYS. I do not think we have budgeted for that.

Senator SESSIONS. Now, General Keys, you might share with Senator Chambliss and Senator McCain—and I will yield the floor here to Senator Chambliss—briefly follow-up on Secretary Sambur's comments about how well the F/A-22 is performing as a combat aircraft.

General KEYS. I have talked to the pilots who are flying the airplane. When you talk to them, they have nothing but a big smile. The airplane is working well. The avionics were well above the minimum required threshold for avionics stability. When they flew, in all of the engagements that I have talked to them about flying, these adversaries, they die, and die before they even get a missile off.

The airplane is easy to fly. It is flying well. We have turned a number of the force three times a day with only four airplanes, which says something about—at this stage in maturity—how well the airplane is working. So, from an operational standpoint, we see this airplane as being everything we expected it to be. We are lusting after the air-to-ground capability as we get through IOT&E.

Senator SESSIONS. Senator Chambliss, I am sorry I missed my visit down to Georgia. I was ready to get on the plane, and they would not let me.

Senator CHAMBLISS. We intended to let you be the first Senator to fly an F-22. [Laughter.]

Secretary Sambur and General Keys, you were talking about the operation of the F-22. I have had the same experience talking to those pilots. They are nothing but excited about the way this weapons system flies and operates. I understand you did some simulated flights, combat flights, against the F-15, which has been “the” airplane that has allowed us to, early on, capture air superiority in every conflict it has been involved in. Could you tell us what happened when you simulated the combat with the F-22 against the F-15?

Dr. SAMBUR. I had put a portion of that in my oral statement, and General Keys can add some background. But what I did say in my oral statement was that a four-ship F/A-22 versus eight F-15Cs, all of the F-15Cs were killed in a matter of moments, and they did not get one single missile off. That has been the experience. They did not even see the F/A-22s. It was almost as if they were down and out in the first round of a fight, with the first punch. So very significant.

As I characterized the AFOTEC commander when he talked about effectiveness during phase 1, his quote was “very impressive.”

General KEYS.

General KEYS. I cannot add much to that. Again, it is everything that we desired it to be, everything we have designed it to be. The

performance that we are seeing in the hands of our pilots is absolutely astounding.

Senator CHAMBLISS. In spite of it being a great weapons system—and I have been a fan of it since I have been a Member of Congress—the cost of it keeps escalating. I know some of that is due to problems we have had; some is due to delays in production; some has been due to the reduction in the number of overall purchases. But where are we today, relative to cost? Because with the tight budget times we have, tell us where we are.

Dr. SAMBUR. Okay, I can comment on that. We have just completed, verbally, the negotiations for Lot-4. We have a target price curve that we are hoping to meet in order to achieve the full complement within our budget of F/A-22s. We were able to settle with Lockheed Martin exactly on that target price curve, which means that the stability that you have given us in Congress, in terms of maintaining the funding, and the management attention that you have been asking us to give, is paying off. We are actually achieving the price reductions and producibility enhancements that we expected. If we continue along this trend, with the OSD budget we will get the 277 aircraft, and we may even do better.

Senator CHAMBLISS. But what is our per-copy cost in Lot-4?

Dr. SAMBUR. There are different ways of characterizing it, but the flyaway cost, the recurring flyaway cost, without engines, is about \$110 million. With engines, you add another \$20 million; it's about \$130 million. If you talk about flyaway costs including tooling and all of the other attributes, I think it is in the \$150 million range. But it is exactly on the budgets that we predicted.

Senator CHAMBLISS. Okay. The Defense Acquisition Board, I know, met on Monday to review the F/A-22 program, and particularly relative to the avionics stability and functionality during the OT&E phase 1, and made a decision to move forward, that all the testing is on track.

Dr. SAMBUR. What they actually said was that there are no impediments for an April delivery. They were very "encouraged," was the words of Mike Wynne, the Under Secretary for AT&L, with the progress. He just wanted to make sure that we certified to Congress that we are achieving the milestone, the criteria of 5 hours mean time between critical avionic instability events, which, I mentioned before, we are about four times that threshold. We will certify that. Plus, we need an additional bit of training for the pilots and the maintainers. We are definitely on track for April. As Mike Wynne indicated, there is no impediment, and we do not think there is any impediment. We think we will get there, and we will be within the cost that we projected. That is good news, as well.

Senator CHAMBLISS. Last, there was a problem last year relative to the avionics stability. Where are we with regard to that issue and any other problems that may have been incurred in the last 12 months?

Dr. SAMBUR. Last year at this time, there were a number of avionics stability issues. First of all, when you turned on the system, there was a fairly significant probability that it would not start up. Now our probability is 100 percent that it will start up. At the DAB that you mentioned, it specifically made the point that start-up is no longer an issue on this program.

In addition, the stability between events, critical events, where you have to reset the program, is no longer an issue. There are no major resets. You have anomalies in the software, but it comes back. We have no reset issues where the pilot has to intervene in the scenario.

So we are making extremely good progress, and we are encouraged.

Senator CHAMBLISS. Thank you, Mr. Chairman.

Senator SESSIONS. Senator McCain.

Senator MCCAIN. Secretary Sambur, what is the status now of the tanker situation?

Dr. SAMBUR. We are on course, and we are strictly, and I mean—

Senator MCCAIN. We are what?

Dr. SAMBUR. We are on course, there are no activities with respect to any of the tanker negotiations. We are strictly—and I mean strictly—adhering to all of the OSD guidance with respect to the tanker program.

Senator MCCAIN. Meaning that an analysis of alternatives (AOA) will be conducted?

Dr. SAMBUR. The AOA will be conducted in accordance with the OSD guidance, yes.

Senator MCCAIN. When do you expect that to be completed?

Dr. SAMBUR. We are looking at a August 2005 date.

Senator MCCAIN. So you would disagree—or would you agree with this statement? “The plan we have for the 767 is valid. The options are contracted, and it’s operationally viable. The options of re-engining old 707s gives us a re-engined 50-year-old Eisenhower air tanker, not viable, from my perspective, or the ability to go look at something out there that is outside the boundary—outside the boundaries of a 767 airplane.” Yes? You would not agree with that statement? Or would you agree with that statement?

Dr. SAMBUR. I would say that, Senator McCain, we are living exactly within the dictates of the AOA. We have an option to look at—

Senator MCCAIN. That is—

Dr. SAMBUR. We are within the dictates of the OSD guidance on the AOA.

Senator MCCAIN. The reason why I mentioned that, General Moseley made those statements just a short time ago. Is that standard procedure, where a high-ranking Air Force officer comes over here and testifies in direct contradiction to what you just said when I asked you the status of the tanker deal?

Dr. SAMBUR. I do not think I can comment on that. All I can tell you—

Senator MCCAIN. He works for you, does he not?

Dr. SAMBUR. No, he does not work for me.

Senator MCCAIN. I see.

Dr. SAMBUR. All I can tell you is that, from the acquisition point of view, we are strictly—strictly—and I want to emphasize that—living within the OSD guidance, we are on course, and we are faithfully following the guidance with respect to the AOA.

Senator MCCAIN. Secretary Young, for a tanker that would be used both Service-wide and NATO-wide, should that tanker be ca-

pable of refueling receptacle- and probe-equipped receive aircraft on the same mission?

Mr. YOUNG. Admiral Nathman is really the appropriate person to answer your question.

Senator MCCAIN. Admiral?

Admiral NATHMAN. On the same mission? Not necessarily, sir. That's one of the issues we have. The Air Force has to have a certain amount of liquidity or a certain amount of room, understanding that you frag inside your air tasking order what tankers are going to support which aircraft.

Senator MCCAIN. Let me tell you, on June 25, 2002, the interim Vice Chief of Naval Operations, Admiral Fallon, conditionally signed off on a Joint Requirement Oversight Council memorandum on Air Force refueling aircraft operational requirements document, ORD, in concurring with the ORD, stipulated the following, "Critical. Change sentence to read: The aircraft must have the capability to refuel two receivers simultaneously." His rationale was, "Dual drogues maintain the current refueling capability of the KC-10 and KC-135 aircraft for probe-equipped aircraft." Do you agree with that?

Admiral NATHMAN. Yes, sir, I do. I want to explain my previous statement, sir.

Senator MCCAIN. Yes.

Admiral NATHMAN. What I meant by that was, the aircraft would have the capability. You would not necessarily load or task organize each aircraft to have that capability. It would be smarter, in some cases, in terms of operational availability of those aircraft, that they had the ability—if you were doing, let's say, a trans-Atlantic escort of F-15s, you would configure the airplane a certain way. If you got into the mission area, you would configure the airplane for dual capability. So a Navy aircraft, a Marine Corps aircraft, or an Air Force aircraft could refuel from those particular aircraft. That is what I meant by my earlier statement. So we stand by the order that our threshold is to have the dual capability. That is important.

Senator MCCAIN. It is your understanding that that was not part of the ORD for the tankers.

Admiral NATHMAN. No, sir. My understanding was part of the ORD for the tankers would have dual-mission capability.

Senator MCCAIN. Actually, it was taken out.

Dr. Sambur, I do not like to keep re-plowing old ground, but I am still intrigued by your communications with Boeing Aircraft. A former colleague of yours has been fired and is now under investigation. A lot of interesting things happened, including messages that were sent to you that were immediately dispatched to the Boeing lobbyists. There was a message sent to you on Tuesday, April 15, 2003, and it is to you from Mr. Wynne. It says, "Marv, some good news, some bad news. Good news," et cetera, "about OMB in discussions with," and then he goes on, "we'll reset the baseline, and so here's our current strategy." Within minutes, you transmitted that to Boeing. Within minutes.

Dr. SAMBUR. Can I explain?

Senator MCCAIN. Sure.

Dr. SAMBUR. Mike Wynne and I had a strategy to let Boeing know—if you read the rest of that e-mail, it says, at the bottom of that, “We will give Boeing one last chance to lower their price, or else it’s all over. It’s the end of the day.” Mike Wynne and I deliberately wanted to make sure that Boeing understood, no matter what political clout that they had, if they did not give us, not only a good deal, but the best deal, we were not going to go forward. If you read the bottom of that e-mail, it specifically says we will give Boeing one last chance.

Senator MCCAIN. Why did Mr. Wynne have to go through you?

Dr. SAMBUR. Because they were not listening to anyone. They felt that, at that particular point in time, that they had the political power with respect to this deal. So we wanted to make sure, in the building, which we always did, that we were going to get not only a good deal, but the best deal for the taxpayers, and we wanted Boeing to understand that.

That we, within this building, were going to pull the plug unless they lowered their price and gave us the best deal. You have e-mails—because I know you—your assistant, your staffer, has shown me them—where I told Boeing that unless they guaranteed to us that we were getting the best deal, it was no good; it was off.

Senator MCCAIN. I have never seen that, but—

Dr. SAMBUR. Oh, he has it—

Senator MCCAIN.—I do have an e-mail here, Dr. Sambur, that says, “Jim”—that’s Mr. Albaugh, Jim, the first name basis with the lobbyist—“Jim, Please treat as sensitive. I documented your visit to create a sense of urgency. Marv.” Any objective, Marv, Jim and Marv are communicating with each other, the lobbyist and the Secretary in charge of the deal? It is just—

Dr. SAMBUR. Jim Albaugh is the executive vice president of Boeing.

Senator MCCAIN. Yes.

Dr. SAMBUR. The new modern management technology is that you have a cooperative, collaborative environment with the people you deal with. That gives—

Senator MCCAIN. Really?

Dr. SAMBUR. Collaboration is the way things are best done.

Senator MCCAIN. Dr. Sambur, I have been around too long to buy that line. The fact is that all of these cumulative e-mails indicate you had an unsavory, close relationship with the employees of Boeing Aircraft. You are stating that you were going to get the best price. OMB, GAO, and somebody else all assess your deal to cost \$5.7 billion more to the taxpayers of America, the deal you were trying to push through—

Dr. SAMBUR. Can I comment on that?

Senator MCCAIN.—the one—let me finish and then I will let you comment on it. The one that even after the Secretary of Defense said they were going to be on hold, you sent out an e-mail—and I will show this to you—“We should sign the deal today.”

Dr. SAMBUR. Let me comment first on that e-mail. If you read the originating part of that e-mail, I was specifically asked by OSD to comment on two items. The two items were which was the preference, because if you remember, after the Secretary of Defense made his statement about potentially pausing, he also indicated he

would ask his staff for comments and opinions as to whether to go forward.

Senator MCCAIN. No, he did not say he was thinking about it. He said, "The deal is on hold," Dr. Sambur. He did not say "tentatively thinking about it." He said, "The deal is on hold." Then you wrote, saying, "Let's sign the deal today."

Dr. SAMBUR. Senator—

Senator MCCAIN. That is fact.

Dr. SAMBUR.—that is not—

Senator MCCAIN. That is just fact.

Dr. SAMBUR. Senator, I happen to have the e-mail that actually says—

Senator MCCAIN. I happen to have e-mails, too.

Dr. SAMBUR. Do you have the originating e-mail from Dr. Spruel from OSD that says, "Please feel free to give us your opinion"?

Senator MCCAIN. No, because you refuse to give us those e-mails, Dr. Sambur.

Dr. SAMBUR. How did you get this e-mail?

Senator MCCAIN. Get the e-mails to us, and that way we would be able to make an objective judgment. The Air Force has refused to give us your internal e-mails.

Dr. SAMBUR. Our e-mails will show that we were dedicated to—

Senator MCCAIN. How could we know unless you give them to us?

Dr. SAMBUR. That is an issue beyond my paygrade, sir, to—

Senator MCCAIN. Would you be glad for us to have the e-mails, Dr. Sambur? Personally?

Dr. SAMBUR. You are asking me personally? I have nothing to hide, because you will see what they mean.

Senator MCCAIN. Would you like for us to have the e-mails, Dr. Sambur?

Dr. SAMBUR. Personally?

Senator MCCAIN. Yes.

Dr. SAMBUR. Again, I will answer this from my personal point of view. I will be glad to show you the e-mails, because it does portray the Air Force as always intending to get the best deal. But there are other issues besides my personal comments here that have to be taken into consideration.

Senator MCCAIN. One thing that is clear, Dr. Sambur, is, the Air Force was not getting the best deal. One thing that is totally clear is, the taxpayers were going to be ripped off to the tune of \$5.7 billion, by objective observers. Not me. The Office of Management and Budget, the General Accounting Office, and other objective observers. That was—

Dr. SAMBUR. Can I comment?

Senator MCCAIN.—that was what the deal was, Dr. Sambur. Thank God we had a hearing in the Commerce Committee and had this investigation going in the Commerce Committee, and these aspects come to light of what happened, and the changes that were taking place in Boeing. Unfortunately, no changes have taken place, so far as I can see, in the way the United States Air Force does business, and that is very sad. Now you can respond.

Dr. SAMBUR. Thank you. The \$5 billion that we are talking about only occurs if we were willing to pay, up front, for all of the aircraft. That is the same way as saying you can save a lot of money if you are willing to spend all of the cash up front for your house and you do not spend the mortgage. You have to remember—

Senator MCCAIN. I will be glad to provide for the record—that is just simply not a factual statement. But go ahead.

Dr. SAMBUR. How is it not a factual—the \$5 billion is based upon the assumption that if you pay for all of the tankers up front, just as if you pay for a house—a \$500,000 house, if you pay cash up front, you save money over a mortgage payment. The important point to remember is, in order to pay for these tankers up front, we would have had to take \$10 billion out of our budget for other things. The rule of thumb is that for every dollar you subtract from funding, you have to put \$3 back in, in the future. That means that \$10 billion we have taken away from other programs, we would have had to put \$30 billion in to make those programs whole.

Senator MCCAIN. You can argue with whoever you want to, but this is from the Under Secretary of Defense, Ken Krieg. He says, “We find that leasing provides no inherent economic efficiencies relative to direct purchase of tankers, and, therefore, are more expensive in the long run.” So it is just foolishness, Dr. Sambur, for you to hold a position that is contradicted by every outside governmental entity with responsibilities.

My time is expired, Mr. Chairman, and I hate to keep—

Senator SESSIONS. Well, I know.

Senator MCCAIN.—going through this, but it is the most disgraceful conduct that I have seen in 44 years of serving this country. I have never seen anything like this. After we think that we got things on track here, the Vice Chief of the Air Force comes over and says something in direct contradiction to the Secretary of Defense’s policy. I ask him why, and he said, “Well, that’s my personal opinion,” without being asked what his personal opinion is. So if I get a little frustrated, Mr. Chairman, you can understand. This is not the way we are supposed to do business, and that—the Congress of the United States, and specifically this committee, exercising its oversight responsibilities—they will not give us the communications within the United States Air Force. Yet when these nominees come before us, they sign a piece of paper that says, “Will you provide this committee with all communications, upon request?” “Yes.” But we do not get them. Now Dr. Sambur is claiming that he has e-mails that will prove his case. How do we know that? How do we know that if we do not get them?

I thank you, Mr. Chairman.

Senator SESSIONS. I will just say a couple of things. First, a lot of money is involved. I thank Senator McCain for raising the issue. When the dust settles, we will probably have a wiser proposal when this analysis of alternatives comes through than we have had before. If you take it as a policy that you want these aircraft on short order, virtually immediately, it is going to cost you more. In the crazy budget system we operate on here, you have to—probably a lease was the only way to do it. But I am inclined to believe that was not, in the long-run, in the interest of the taxpayers.

Senator MCCAIN. Could I remind you, Mr. Chairman—

Senator SESSIONS. Yes.

Senator MCCAIN.—they can only produce so many airplanes a year. We could not purchase all of these airplanes all at once, because they produce a certain small number every year. That is another fallacy of Dr. Sambur's statement that——

Senator SESSIONS. I respect your view on it, and we are going to come out better in the long run. I do recognize, Dr. Sambur, that it is higher than your paygrade, the concern over producing, to the United States Congress, all the Defense Department's internal e-mails concerning the procurement program. That is a matter that deserves some careful thought. But, in general, you need to be forthcoming to the authorizing committees.

Senator CHAMBLISS. Mr. Chairman, before you leave that issue can I just say whether you agree or disagree on the lease issue, Senator McCain's right about this. If we cannot demand correspondence that supposedly substantiates their position that we are debating and questioning, then something is wrong in the system, and maybe legislation ought to be passed to cure that.

Senator SESSIONS. Before they write you your paycheck, they want to see all your e-mails. It is a matter of seriousness that—it is not blithely to be entered into, for the Secretary of Defense to say, "Well, whatever e-mails we have in the Department of Defense, everybody in Congress can have a copy of." I have been there. I have subpoenaed documents before, and I know that you normally have to have, under a subpoena, a basis for the subpoena. You have to maintain the secrecy of the documents and assurance of that. So maybe at some point this could be observed in a way that maintains some confidentiality, but I am a little bit sympathetic with those in the Department, based on my experience as a Federal prosecutor who has investigated cases like this. They would not want everything they do turned over to——

Senator CHAMBLISS. Classified documents—Senator, that would be, right. But when we are——

Senator MCCAIN. Senator Sessions, could I mention that——

Senator SESSIONS. Go ahead.

Senator MCCAIN. This is obviously an issue of great controversy. There has been the retirement of the chief executive officer of one of the major corporations in America. This issue has become controversial to a degree that we have the right to know all the facts. We are not asking for every e-mail ever sent within the DOD; we are asking only for the communications that went on that address this specific issue. Why is that? The e-mails that we got from Boeing are directly related to many of the individuals in the Department of Defense, including Dr. Sambur, who defends himself by saying, "We have e-mails that will prove that that was wrong." But yet he will not show it to us.

Finally, in the nomination process, the form says, "Will you provide communications to this committee, upon request?" Answer: "Yes." We ought to change the form, or change what we do.

Again, Mr. Chairman, we do have oversight responsibilities. This is a \$20 billion deal. This was not—this is not chicken feed here.

Senator SESSIONS. I agree with that.

Senator MCCAIN. According to objective observers, the taxpayers were going to be abused to the point of \$5.7 billion. This is a serious issue.

But there is also another thing that is more serious about this, and that is this relationship and this revolving door that is going on now between the Defense Department and lobbyists. It is a serious issue. All of this—all these e-mails, they are all on a first-name basis with each other—Marv, Jim, Mike. It is really concerning and should be concerning to all of us. I intend to pursue this aspect of the issue.

I thank you, Mr. Chairman.

Senator SESSIONS. I think you should. You are to be congratulated for raising the issue and pursuing it. We are going to be better off having not gone forward with the plan as originally proposed. I would designate you the \$5 billion man, so far, on behalf of the taxpayers. [Laughter.]

Senator MCCAIN. Thank you, Mr. Chairman, and I thank the witnesses.

Senator SESSIONS. With regard to the Defense Department official who went to Boeing and has resigned, is there an investigation of that?

Dr. SAMBUR. Yes, there is an investigation.

Senator SESSIONS. By Federal prosecutors or IG?

Dr. SAMBUR. There is an IG. I do not know how far it has advanced.

Senator SESSIONS. IGs have an obligation to refer any uncovering of wrongdoing to a Federal prosecutor at some point.

Let me just ask you on this. Now we are in limbo about this thing. We are proposing to eliminate or retire 68 KC-135E aircraft. They continue to perform at good rates. The KC-135R is operating at a mission-capable rate of 82 percent, and the old KC-135E is at 75 percent, which is not much different than full-aircraft average. They are refurbished, and there is a desire to go on for a new aircraft, because they are over 40 years old. I know that. But would we not be making a mistake if we continued to retire so many of these aircraft? Should we not slow down until this matter is cleared up somewhat?

Dr. SAMBUR. Mr. Chairman, I would like the operations individual to answer that, because it is more applicable from him.

Senator SESSIONS. General Keys?

Dr. SAMBUR. Yes.

General KEYS. Yes, sir, the way we look at it is this, the 135E, when you look at 75 percent on a mission-capable rate, you also have to take into consideration how many of those airplanes do you actually have on a ramp, because that is how many that you have on your ramp that you can actually fly. So there is a certain number of that fleet that is not available because it is in depot. So when we get down to real numbers, you are—of the total fleet of 135Es that you own, it is about 64 to 68 percent that are—flyable.

Now the question becomes that in order to keep these things flyable, I have to put more money into them. Eventually, I am going to have to put new pylons in the airplanes, just because of the corrosion, to keep them safely flyable. If, on the other hand, I take the 135E fleet down, which we are getting to the point that

we believe that that is the prudent course, I lose about 11 percent of my tanking fleet. If I take the money, the people, plus-up my crew ratios, I can fly my Rs now to the point that I am losing about 4 percent of my total tanking capability. Our belief is that that is the prudent course of action at this point.

Senator MCCAIN. Could I just ask, Mr. Chairman, as follow-up to that, have you done a corrosion study?

General KEYS. We should have the corrosion study—I think it is due this May.

Senator MCCAIN. But you have not done a corrosion study?

General KEYS. We have done an internal one. We were asked to do another study.

Senator MCCAIN. The internal one was not a complete study?

General KEYS. Sir?

Senator MCCAIN. The internal one was not a complete study?

General KEYS. That was the assertion, and that is why we are doing another.

Senator SESSIONS. I thank Senator McCain for raising that issue and asking for that, the more complete study, to be done. That is important. Yes, I know there is some corrosion, but we do not seem to have too much of a problem in getting these aircraft back in first-rate service, at least a lot of them—you would identify those that have serious problems.

We probably need to slow down a little bit on a decommissioning of the—

Senator LIEBERMAN. Can I ask one—with apologies to Senator Pryor—because you have touched on something really important here, and it obviously follows on Senator McCain's questions. The question I have is, how many of the KC-135Es are in the depot now? How many would be there in fiscal year 2005? General Keys, do you know?

General KEYS. Okay. Right now, in depot status, the 135Es, we have 22 of them in depot. We have another 30 that are unit possessed, but they are not mission capable. So we have 50 that are—

Senator LIEBERMAN. I should have said this while Senator McCain was in the room. Just in case the Boeing agreement does not go forward. [Laughter.]

This is a concern, is it not? Your answer about the 135Rs is quite correct. What I would worry about is, in our intensified conflict situation where we would need a surge capacity, might we not need some of those K-135Es? Assuming the Boeing agreement does not go forward, at least not in a timely way.

General KEYS. Of course, we have to look at that, looked at going both ways. If we have to go east and west, for example, swing the force because that tanker air bridge is very important. It is important to enabling our long-range strike assets. Again, we believe that separate from how we recapitalize the tanker force. There is an agreement that we will need to recapitalize our tankers at some point, some point fairly in the near future. But separate from that point is the question of the airworthiness of these KC-135Es, and how much money does it take for me to continue to keep them FMC? They are maintained by our ARC forces, and they are doing a great job.

Senator LIEBERMAN. Right.

General KEYS. They are old airplanes, but it takes a lot of maintenance man-hours per flying hour, and we put a lot of money into depot in order to get these airplanes through depot.

Dr. SAMBUR. Senator Lieberman, may I add just one more little thing to that?

Senator LIEBERMAN. Sure.

Dr. SAMBUR. The Es right now are on flight restrictions. In order for them to be relieved of those flight restrictions, we have to do a major replacement on the struts. That is a considerable sum of money. You have to weigh whether or not you want to put in a lot of money on 43-year-old planes. If we do the struts and re-engining, that, in and of itself, is \$40 million per plane, for the re-engining and re-strutting, which is a considerable amount of money for 43-year-old planes.

Senator LIEBERMAN. Thank you. Thank you both.

Senator SESSIONS. Thank you.

Senator Pryor.

Senator PRYOR. Thank you, Mr. Chairman. I must tell you that I do concur with what Senator Chambliss said a few moments ago. Regardless of your view of the Boeing contract, there must be a way for us to get the information that we want to get. We can do it in a discretionary way if we need to.

Senator SESSIONS. There might be something that can be worked out. Just a broad blanket, produce everything that we have ever done, you have me nervous. But the IG has access to it. If any Federal investigation by a prosecutor gets involved, they will have access to all internal e-mails.

Senator PRYOR. Thank you, Mr. Chairman. Secretary Sambur, I bet you do not want to talk about Boeing anymore, so let's talk about Lockheed Martin. How does that sound? [Laughter.]

Dr. SAMBUR. Sounds fair.

Senator PRYOR. I have some questions for you about the F/A-22.

Dr. SAMBUR. Okay.

Senator PRYOR. The Air Force announced, I think it was yesterday, that we agreed, with Lockheed Martin, to buy the fiscal year 2004 F/A-22s. I believe it was for less than \$110 million per aircraft. Is that right?

Dr. SAMBUR. There are various ways of looking at this. There is a flyaway cost—

Senator PRYOR. Okay, and that is what I was going to ask you about.

Dr. SAMBUR. Right.

Senator PRYOR. Explain that to the subcommittee, please.

Dr. SAMBUR. \$110 million—they are giving me a cheat-sheet.

Senator PRYOR. That is good. I need those from time to time.

Dr. SAMBUR. \$110 million is basically the aircraft itself.

Senator PRYOR. Okay.

Dr. SAMBUR. When you look at the flyaway costs, you have to include the engines, which is approximately \$20 million. Plus, the way it is calculated. They amortized tooling costs and all these other issues associated with production into the cost. When you look at it that way, you are in about the \$150 million range. The reason why the \$110 million was quoted is it is a standard that we

are trying to hold Lockheed Martin's feet to the fire. That is the aspect of the target price curve. If we achieve that target price curve, then we are able to get the number of F/A-22s that we want, and it gives us a measure of how effective they are, in terms of producability and meeting their price objectives.

Senator PRYOR. Okay. I guess I was just a little bit confused about the announcement, because when I read \$110 million per aircraft, I think that means \$110 million per aircraft. But really we are still at the \$150 million figure, basically, when you add everything up. Is that right?

Senator SESSIONS. We have to have an engine, do we not?

Dr. SAMBUR. But it is a way of holding, as you mentioned, with Lockheed Martin—we are holding their feet to the fire, because it is very important that we maintain this target price curve.

Senator PRYOR. Right.

Dr. SAMBUR. As I mentioned before, we were able to do that because you, in Congress, have given us stability in funding. When you have stability in funding the vendors will be able to take certain risks that they would not do if there was an instability in this program.

Senator PRYOR. Right.

Dr. SAMBUR. So the stability you have given us has really paid off, and your demand on us giving management attention to this program has also paid off in dividends. You were not here at the beginning, but we talked about the good news with respect to our march on IOT&E, how avionics stability is getting there, how the effectiveness of the plane has been characterized as very impressive.

Senator PRYOR. Great. Is it fair to say that the cost of the program is holding steady? Are we seeing some savings in the program, given the stability that Congress has given you?

Dr. SAMBUR. It would be fair to say that our budget estimates for development are holding, that the production—that by achieving the price—target price curve, next year we are hoping to get 24 planes. If you do not take funding away from us, we will achieve that 24. If funding is taken away from us, it adds instability, and the number may be significantly less. But what it does say to you is that if you give us the funding, we will get 24 next year.

Senator PRYOR. Right. Also, while we are on the subject of the F/A-22, I understand that the Air Force has been looking at the development of a bomber version of that. I think it is FB-22. Is that what that is going on?

Dr. SAMBUR. That is the number.

Senator PRYOR. Give me a status report on that, or tell this committee what is going on with that.

Dr. SAMBUR. Basically—and then I will let General Keys elaborate on that—but we have actually just formed an Integrated Product Team (IPT) within the Air Force to look at long-range—

Senator PRYOR. What's an IPT?

Dr. SAMBUR. Integrated Product Team or IPT. We speak acronym-ese. [Laughter.]

After awhile, it sounds like English.

Senator PRYOR. Right.

Dr. SAMBUR. We formed this group to look at long-range strike. Within long-range strike, one of the interim solutions is the FB-22. Having set that up, I can give you General Keys, who can give you some particulars. But we have not really made a decision as to where we are going.

General KEYS. A lot of pieces to it. When you look at the long-range strike, you are looking all the way from current bombers to the future of hypersonics, those kinds of systems. What we are looking at is, we have a certain current long-range strike system—the B-2, the B-1, the B-52. At some point, we have to start recapitalizing and looking at the future of long-range strike. Now the question is, can I bridge the force that I have by incrementally bringing them into the net, making them more capable, doing some maintenance and logistics upgrades to the airplanes, and use them as a bridge force to get me to the point where a new long-range strike system happens to be appears, whether it is manned, unmanned, whether it is a hypersonic or whether it is a conventional kind of airplane, or do I need something in the middle, as a bridge force?

Since you are already building an airplane, naturally one of the things that would come up would be, what if you made this airplane bigger, put different wings on it, and called it an FB-22?

Senator SESSIONS. Just modified—

General KEYS. That is easy to say. It may become expensive and hard to do.

Senator PRYOR. So, in other words, talking about modifying an existing design, to see if you can do it?

General KEYS. Yes, sir. So those are just a number of the things that are being looked at in an analysis of alternatives of long-range strike systems. How do we get to where we need to be? What do we do for the bridge force in the interim?

Senator PRYOR. Are you in a position today to estimate how much time and money it will take to develop an F-22, if that is the route we go, or are you all just too early in the process?

General KEYS. I think way too early.

Senator PRYOR. Way too early?

General KEYS. Way too early.

Senator PRYOR. The last question I had was for Secretary Young. I must tell you that sometimes when I talk to folks that deal with the military, they say they are—it is too slow in dealing with them and trying to get in to supply the military. Also, sometimes they see what we are paying for systems, and they think it is too much. There are various examples of that. We do not need to go into that right now.

I know that you have been involved in Operation Respond, and I would like to hear from you about that and how that is going so far and what is coming of that, if you do not mind.

Mr. YOUNG. The starting point of it was when Secretary England visited General Conway at Camp Pendleton. As the Marines prepared to launch, General Conway, General Mattis, and General Amos' comments were the materiel establishment had responded very well to their needs, and all their vehicles would have an armor kit. The helicopters going in country would have surviv-

ability equipment. They would also have other tools, communications and other systems, to deal with IEDs.

To further institutionalize that, Secretary England asked that we stand up this Operation Respond. We set up a Web site, where marines in the country can identify a problem and send it back asking for help. We have a group of people to look at whether there are technology-system solutions we can bring to bear on their problem. There is a council that is clearing those ideas, so we do not overwhelm the marines. We work with the leadership to tell them what we would bring in country and give them a choice to say, "Test it here in our labs and warfare centers before it comes in country." In many cases, General Conway's been forward-leaning in saying, "I will take equipment and give you a real-world test environment."

We are meeting on roughly a weekly basis right now, hearing what reports and things we need to do. One of the first things we received from the Marine Corps concerns ballistic goggles. They feel they could use better equipment, because they are encountering IEDs and blasts. We're in the process of trying to respond very quickly in order to provide those items. We are also looking at augmentation of body armor, an additional armor kit that can be added to the limbs and extremities, to provide better protection than they have. We are working right now to identify dollars, and make sure that General Conway and his team want it. We are going to proceed with that. We are going to keep that flow. Secretary England is adamant, saying that this is a war, and we are going to respond to troop needs, because the safety and effectiveness of the marines in country is the penultimate challenge before the Department of the Navy.

Senator PRYOR. Thank you, Mr. Chairman.

Senator SESSIONS. Thank you.

Now I will recognize Senator Lieberman. Dr. Sambur, you deserve some historical perspective here. This whole idea of the lease proposal came out of Congress, did it not?

Dr. SAMBUR. Exactly.

Senator SESSIONS. It was not in the Armed Services Committee, but the appropriators. The Appropriations Committee, they directed this proposal that this lease arrangement be entered into. It has been shown not to be economically wise. Also, it has some problems with that classical approach to acquisition in Congress. In the long run, for the record, you did not come up with this idea and propose it, to begin with, did you?

Dr. SAMBUR. No. No.

Senator SESSIONS. Okay.

Senator Lieberman.

Dr. SAMBUR. We were responding to the legislation from Congress.

Senator SESSIONS. It actually was mandated by Congress?

Dr. SAMBUR. Mandate from—

Senator SESSIONS. Yes.

Dr. SAMBUR.—to specifically—and this is what is so puzzling—to specifically look at the Boeing 767.

Senator SESSIONS. All right.

Dr. SAMBUR. So they told us to do it, and now they are criticizing us for doing it.

Senator LIEBERMAN. Welcome to Washington. [Laughter.]

Senator SESSIONS. I will give credit to Senator McCain, who fought it when it was proposed in Congress.

Senator LIEBERMAN. It is true. I know that this was not your idea. I am just wondering whether anybody in the room with John McCain today would claim parentage of the idea. That would be another question, whoever did come up with it.

This has been a good hearing, Mr. Chairman. I appreciate it. It is what Congress should do with oversight—in our oversight responsibility. I hope you all appreciate that we appreciate what you are doing. Part of our responsibility in this relationship is to ask these questions. So thank you very much.

I just have one, and it is about the EA-6Bs—

Dr. SAMBUR. Yes, sir.

Senator LIEBERMAN.—which are very much in demand, an extraordinary role in providing jamming support for almost all aircraft strikes, including those for stealth aircraft. The EA-6Bs are aging, too.

Secretary Young, in your prepared testimony, you spoke to the plan that the Navy has to replace the EA-6Bs with a variant of the F/A-18E/F, which will be called the EA-18G, two-seat aircraft, not the four-seat, as the EA-6B is. I wanted to ask you, since these are so important and have been in so much demand—in light of the Joint Strike Fighter delays that we have talked about, are you comfortable that this new program, the EA-18G program, will be able to deliver capability in time to replace the aging EA-6B aircraft?

Mr. YOUNG. Admiral Nathman may want to add comments. We signed the contract in December for the System Development and Demonstration phase. I visited St. Louis ahead of that a few months earlier. They have a well-laid-out schedule as a specific agreement between the acquisition community and the requirements community about what items of capability, weight, and power will go on this aircraft and what we might have to trade if we encounter problems. But the fact that they have identified to that level of detail, we know what needs to be done. The aircraft are included in the F/A-18 multi-year, so we have a very solid acquisition program to go forward and deliver that capability. It is time-phased with when the EA-6Bs go out of the force. The fundamental effort is for the acquisition team to continue to execute the program.

Senator LIEBERMAN. I wonder if I could ask, maybe Admiral Nathman and Secretary Sambur, General Keys, or General Hough, what the plans are for replacing the Marine Corps and Air Force parts of the EA-6B fleet.

Admiral NATHMAN. Sir, I will let General Hough talk specifically to the Marine Corps requirement on that issue. What I would add, on the EA-18G, is, if you look at it in terms of risk, often folks ask for what your risk-reduction plans are, and you are building, now, this aircraft on a proven aircraft, the Super Hornet airframe.

Senator LIEBERMAN. Right.

Admiral NATHMAN. You are incorporating this advanced crew station, which allows you to integrate, I believe strongly, along with the avionics world that we are going to see in the ALQ-99,

so you can go from four- to two-crew—that is the advanced crew station—that is being proved on the current Super Hornet. You are going to, as it were, an improved ICAP jamming system and integrated ALQ-99, so you are seeing proven systems put on a proven airframe. It is really an integration issue. It is very aggressive, because what we saw—we really appreciate the support we have gotten from Congress and from this committee for the EA-6B—is that it is very clear we have to walk away from that airplane as fast as we can to avoid overinvestment in that airframe and engines and, frankly, some safety issues that we saw in the engines several years ago.

Senator LIEBERMAN. Yes.

Admiral NATHMAN. So we have overcome those issues because of your support, but it is time for us to move on. I see, in that airplane, one, it very clearly supports our CONOPs; two, it has a lot of proven systems, which give us a lot of confidence about the risk that we have in those programs. That is our view, because that is the Navy CONOPs, that we will provide all around jamming in an electronic attack. The 18G also comes with a striking capability, and I do not think we should forget that. We have, basically, a HARM improvement, called ARGM, which makes a very effective jamming, as well as killing system. So we are moving from an electronic attack, in terms of suppression, to actually a lethality, to killing things. That is where we use the term Destruction of Enemy Air Defenses.

It is very supportive of our CONOPs; it is integrated; and we are trying to be as aggressive, Senator, as we can, with that aircraft.

Senator LIEBERMAN. That is great. Thank you.

General Hough? How about the Marine EA-6B.

General HOUGH. Sir, in concert with my sister Service, the Navy, we are going to steam along with the EA-6B. We have four squadrons of five each, expeditionary squadrons, as you well know. With the Navy fielding the Growler, we will be the last ones flying EA-6Bs, in the hopes that there will be 20 good ones left to forge ahead. Now, that does not resolve the problem, as you well know, because with my other sister Service, the Air Force, 2 years ago under the tutelage of OSD, they asked us to sit down and come up with, “what’s your plan here?” instead of, “my way or the highway,” or “doing it your own way,” or “why don’t you plan the force?” You have a system approach to leverage off each other. Knowing full well that we didn’t have the capability of C⁴I and some other things that we had to take a look at, and some studies that were being done down at OSD, we agreed to come together again next year and sit down. At that point, now that we know EA-6B is only getting older, the Growler is being fielded, the Air Force, Navy, and Marine Corps will sit down and come together with a plan so that by 2012-plus, before 2015, we have an integrated plan that is strategic in nature and serve us all well.

Senator LIEBERMAN. Obviously, one that will not leave a gap in the——

General HOUGH. That is correct. That is what we are looking for. Because the Growlers——

Senator LIEBERMAN. Right.

General HOUGH.—the EA-6B. The Marine Corps will continue to fly the four expeditionary squadrons. With the capabilities the Air Force brings to the table, we have to sit down next year and come up with a plan that is moderate risk, can be achieved in the time frame, so that we have this capability to meet the threats that are resident in the 2012 time frame.

Senator LIEBERMAN. Thanks, General.

Secretary Sambur, General Keys, do you want to add anything for the Air Force?

General KEYS. Just to pile on, we believe it is a system of systems, and we look at the Growler, for example, as part of that system. We are looking at the B-52, which we have planned now to put jamming pods on the B-52 where those external fuel tanks are. We believe we can get the power and antennas and the technical kinds of receive suites in there that will make it an excellent standoff jammer. Then, of course, the Compass Call, we are upping the block-up grade rate on the Compass Call, which will give it more capability. It primarily is a C-2 sort of jammer. Then looking at the miniature air-launched decoy, with a jamming feature in it, because we believe the wave of the future is a lot of these unmanned systems—small unmanned systems seeded into the areas. So now that we take that entire system and put it together and operate, and that is the point of sitting down together to make sure that, as we, in our minds, concocted this brilliant plan, that we have not left some gap in there that some frequency is not going to be covered, or something is going to require a stand-in jammer that we have only covered standoff, et cetera. So we believe that the plan is going to work.

Senator LIEBERMAN. Very good. Thank you all.

Thanks, Mr. Chairman.

Senator SESSIONS. Thank you.

Now, I just briefly want to ask about the joint unmanned combat air systems. In the National Defense Authorization Act for Fiscal Year 2001, the Floyd Spence Act, we established a goal that within 10 years, one-third of U.S. military operational deep-strike aircraft would be unmanned, which is a dramatic event. My question to you is—and, of course, this is now being done as a joint operation. DARPA is involved with it, and managing it. What are your—Secretary Young and Sambur, would either one of you comment—what responsibility do you have and what input do you have into the development of the unmanned air systems?

Dr. SAMBUR. We have been sharing our requirements with DARPA to make sure that the Air Force's need for a low observable is definitely a part of what they are trying to develop. We have given them several other requirements, and we are basically in a stage of monitoring them. Correct me if I am wrong, John—in 2007, the Services come into the picture. We will then give operational assessments of the suitability of this J-UCAS group, the Air Force's needs, and the Navy is doing—

Senator SESSIONS. Do you want to add on that, Secretary Young?

Mr. YOUNG. There was an EXCOM set up. I was not able to go to the first one. Some decisions were made in light of the funding situation.

Senator SESSIONS. EXCOM is what?

Mr. YOUNG. Executive committee. I apologize, sir.

Senator SESSIONS. Thank you.

Mr. YOUNG. When we embarked on this strategy, a year or so ago, conscious of the committee's mandate, the Navy actually was able to pull itself forward, partner with the Air Force exactly the way Secretary Sambur talked about, and leverage the work that had been done on the X-45. That has migrated into this Joint-UCAS program. But at this point in time, it appears the decisions are that the Navy variants having carrier capability may move later in the program, so the acceleration we had achieved earlier may not be achieved right now. We need to have an opportunity to spend some executive time understanding why these changes are being made and whether they serve the Navy's interest.

Senator SESSIONS. Is this one-third within 10 years? Is that a pie in the sky, or is that something that is achievable? Maybe I will ask the uniformed officers.

Admiral NATHMAN. It is pie in the sky, sir. You have a goal. Maybe you ought to look at the goal, why we reached that goal.

There is a lot of attraction and pull from the standpoint that people pitched unmanned as being inexpensive; and so we always hear the word "inexpensive unmanned," and I do not believe that is the case. Why? What we are looking to leverage in the battle space, in terms of deep ISR, intelligence, surveillance, and reconnaissance, or deep electronic attack, it requires the airframe to be very low observable and have autonomous capability. You add those capabilities in there, because you are removing the other calculator, a computer, and it is called the pilot. So you lower the risk to a man, or a human, but you incur other risks, in terms of the total integration of your system.

Part of the discovery is that we are seeing in this joint interim capabilities review with the Air Force a fairly expensive thing to do. When we look at the deliverables inside the operational assessment which we will get from DARPA—so it is really to look at the ability to deliver on those CONOPs and how doable it is.

We will have a much better feel for the total price of that kind of system, before you turn it into a program, and will the concept of ops really work the way we want it to, before we commit to really big programs.

So I, for one, would say that we are not going to reach the goal, and we have to look at why we think that goal is attractive to us, based on the ability to afford it, as well as the different challenges of being autonomous or manned. What are those particular advantages?

So there are some cases where unmanned has a great leverage on the battle space, in terms of long time on station, and that is worthwhile paying that price. But is it worth the total trades that you have to make, in terms of affordability? That is the next challenge we have. The goal sometimes has to be looked at.

Senator SESSIONS. General Hough, did you want to comment, or General Keys?

General HOUGH. Sir, it is actually similar. We tend to bite off a heck of a lot here thinking that this is a great CONOPs; it sounds terrific. But when you enter the high-risk arena, you are onto the unknown unknowns that we have never faced because we have

never been there before. I would liken it to the fact that the first time they gave me a computer at Naval Air Systems Command, we sat on them for 3 years because we did not have an Internet to play with. It took 20 years to get that Internet. So a tremendous amount of integration, C⁴I, a lot of thinking through this. It will bring a tremendous capability, but it is a ways off. The original date is pie in the sky.

General KEYS. We have a lot of experience with the Predator and the Global Hawk, bringing on the Predator B. So our decision point really is, once we get to this operational evaluation, in 2007, where we bring the airframes together and we see if they can do the things that we want them to do, they have to earn their way onto the battlefield. There are some attractive features of these airframes—the fact that you can make them more stealthy, you can make them survive for a long time. The question is, how much are you willing to pay to strike probably fixed targets deep, and what kind of payload can these things have, and what kind of range are they going to have, and are they going to be air-refuelable? That makes them more persistent, and they can go deeper, but that also makes them more expensive, probably, more complicated. So those are the things we have to wrestle with.

We know a lot about simple UAVs. We all do—Predator and on down, and even the Global Hawk, but from an ISR standpoint, and limited strikes. So we are pressing. There are some economies to be made there, but there are going to have to be some hard trade-offs. You could say 30 percent of the deep-strike force has to be UAVs, but that is the 117 mission, that is the B-1 mission, the B-2 mission, F-15E mission. So those need to come off the table then. We have to be confident that these UAVs will do the job. I think there is—they may. We are willing to see.

Senator SESSIONS. I thank you for that, because Congress is pretty serious about it. I thank you, Admiral, for your frankness about where you see us heading. Congress does believe that we can utilize unmanned aerial vehicles more. We know there has been a reluctance in the Department of Defense to embrace that. You will continue to see pressure to go further and quicker. You should get serious about it. I know you are. But be serious, and pursue it with a positive attitude, and see how far we can go with it.

Senator Pryor, do you have anything else?

Senator PRYOR. No, thank you.

Senator SESSIONS. Senator Lieberman?

Senator LIEBERMAN. No, thank you.

Senator SESSIONS. It has been a very worthwhile hearing. It is good to see these programs moving along on a pretty good course, seems to be getting on track. We have to deal with the Joint Strike Fighter, and the weight program, and a few other issues. But, all in all, if we can conclude these acquisition efforts, we will maintain air dominance and that is what we have to do.

If there is nothing else, we will have a few days to offer any additional questions we may have. If there is nothing further, we are adjourned.

[Questions for the record with answers supplied follow:]

QUESTIONS SUBMITTED BY SENATOR JOHN MCCAIN

JOINT STRIKE FIGHTER

1. Senator MCCAIN. Secretary Sambur, two of the key lessons learned from Operation Enduring Freedom and Operation Iraqi Freedom are that aircraft “reach” and “persistence” matter. What factors cause the U.S. Air Force (USAF) variant of the F-35 to have over 130 nautical miles less range (and thereby less reach and persistence) than the Navy variant?

Dr. SAMBUR. The range difference between the Navy version of the F-35 (CV) and the Air Force version (CTOL) is the result of three factors:

1. Mission Profile: The variants are modeled using Service specified mission profiles as identified in the Operational Requirements Document. The CTOL profile (specified by the Air Force) is more demanding (lower altitude, higher airspeed) than the optimal altitude and airspeed CV profile (specified by the Navy).
2. Wing Design: The CV, which is required to land on an aircraft carrier at nominal speeds of 145 knots, has a larger wing. This larger wing provides the CV better cruise performance than the CTOL.
3. Fuel Capacity: Due to the larger wing, and the fact that the CV has no internal gun, the CV carries 1,600 lbs. more internal fuel than the CTOL.

Of note, the CTOL range requirement of 590 nm allows the USAF access to a majority of areas of interest around the world without sacrificing aircraft performances, and exceeds current F-16 capability by approximately 100 nm.

2. Senator MCCAIN. Secretary Young and Secretary Sambur, I understand that in addition to a 1-year delay, \$5 billion has been added to development costs of the F-35 mostly to address the weight issue in the F-35 Short Takeoff and Vertical Landing (STOVL). Can we still afford to have the F-35 STOVL remain the second in the cue despite these cost and schedule overruns in this variant of the F-35 program? Please fully explain your answer.

Mr. YOUNG. The weight challenge for JSF impacts all variants. The STOVL variant is impacted the most due to the Key Performance Parameters (KPP) related to short takeoff (STO) and vertical landing (VL) aboard L-Class ships. Much of the anticipated design improvements for weight reduction for STOVL are expected to be common across all variants, most specifically the CTOL variant. Concurrent with the weight reduction efforts in the STOVL airframe, we believe the most efficient and cost effective way to demonstrate success in the overall program is to press ahead on CTOL development (with STOVL second). This allows the detail design teams to reap maximum benefits in common weight reduction that are equally transferable to not only the STOVL variant, but eventually to the CV variant too. Additionally, other lessons that can be learned from CTOL detailed development are equally transferable to the STOVL variant. There are risks other than weight reduction in STOVL development that benefit significantly from CTOL development in advance of STOVL design. As a result, delays and cost increases are actually minimized by keeping the same development order among the three variants. STOVL variant is a key element in the Navy and Marine Corps TACAIR integration plan, and we are focusing upfront effort to ensure STOVL viability for our warfighters.

Dr. SAMBUR. As the JSF Service Acquisition Executive, the Navy is providing a coordinated response to this question.

3. Senator MCCAIN. Secretary Young and Secretary Sambur, I understand that the Joint Strike Fighter (JSF) STOVL is having difficulty meeting four key performance parameters (fuel mission radius, flat deck short takeoff, ski jumps short takeoff, and bring-back). What efforts are you undertaking in conjunction with the Joint Program Office to mitigate these challenges?

Mr. YOUNG. The JSF Program office has extended the JSF System Development and Demonstration (SDD) program approximately 18 months to provide time to get the airframe design improvements in place. We expect the design improvements will reduce aircraft weight to a point, when combined with optimized operating procedures, where the JSF will deliver suitable performance again in the areas of combat radius, short takeoff, ski jump short takeoff, and vertical landing bringback. We are re-planning JSF SDD to make sure we succeed. Specifically, our SDD plan recognizes: (1) STOVL performance is absolutely vital; (2) we are focusing upfront to ensure STOVL viability for our warfighters; (3) we are aggressively pursuing trade studies to improve performance by reducing weight; and (4) we are aggressively pursuing installed propulsion enhancements to improve performance.

Dr. SAMBUR. As the JSF Service Acquisition Executive, the Navy is providing a coordinated response to this question.

4. Senator MCCAIN. Secretary Young and Secretary Sambur, from December 2002 to December 2003 the JSF has experienced nearly a \$7 billion cost increase and a 12-month program slip. What key factors have contributed to these dramatic cost and schedule changes, and what confidence do you have that the program is now on track?

Mr. YOUNG. The JSF development activities for propulsion, vehicle systems, mission systems, and integrated testing development are on schedule and performing well. The airframe design effort, however, is taking longer and is more complex than had been originally anticipated. Additional design time is needed to mature the airframe design to address projected performance issues that emerged during the past year. Consequently, the fiscal year 2005 President's budget request reflects extension of the SDD schedule, additional SDD funding, and a 1-year delay for the start of Low Rate Initial Production (LRIP). The largest contributor to the \$7 billion increase is in the extension of SDD by 18 months. The increase also includes added costs for anti-tamper requirements and software risks.

The Department is finalizing the details of a program replan. We have replaced the CDR with an Integration Maturity Review scheduled for April 2004, which will be followed by a series of Airframe CDRs for each variant that will take place over the next 2.5 years. This approach allows us to conduct additional trade studies with the goal of reducing weight and regaining performance. The Department has formed an independent review team to look at the complete program, including a near-term engineering view, assessing the present design, with specific emphasis on weight, aircraft structural design, and other technical risk areas. Then in a broader review, the independent review team will evaluate the program's overall system engineering processes, from design through supportability perspective.

Dr. SAMBUR. As the JSF Service Acquisition Executive, the Navy is providing a coordinated response to this question.

F/A-22

5. Senator MCCAIN. Secretary Sambur, what percentage of the 277 F/A-22s do you intend to purchase under the low rate initial production (LRIP) authorization before an operational evaluation has been conducted? Based on your projection and knowing that LRIP purchases typically constitute about 10 percent of the total buy, how do you justify the increased procurement you have planned for F/A-22, despite the added cost and schedule risk?

Dr. SAMBUR. By the time the Initial Operational Test & Evaluation (IOT&E) concludes in September 2004, the Air Force will have a total of 74 Raptors (PRTV 1 through Lot-4) on contract, which amounts to 27 percent of the projected 277 aircraft profile. While this exceeds the 10 percent "rule of thumb," the Air Force assesses the overall risk for incurring additional costs as low due to the extensive risk-reducing testing completed to date, including over 5,500 flight test hours, 2 lifetimes worth of fatigue testing, and completion of the first phase of Operational Test and Evaluation.

6. Senator MCCAIN. Secretary Sambur, I understand that the F/A-22 is behind schedule and that you anticipate catching up by December 2005. Given that the program is behind schedule and above cost, does it make sense to increase the number of aircraft you intend to buy this year (from 22 in last year's budget to 24 this year)? Please explain your answer fully.

Dr. SAMBUR. In December 2003, the Air Force and Lockheed-Martin concluded a comprehensive scrub of the Raptor production program, resulting in 383 production improvement initiatives. The net result is that the program now has a high confidence, re-baselined delivery schedule in place. This revised delivery schedule includes the time needed to implement these initiatives and the program office now has real-time visibility into the production metrics via a new web-based information system. The Air Force is confident deliveries will return to the original contract schedule in Lot 3, well before December 2005. Based on this confidence, and the additional costs that would be incurred if the production rate were fixed at 22, it is prudent to maintain an orderly ramp-up toward full rate production, with 24 aircraft in Lot 5 (fiscal year 2005).

7. Senator MCCAIN. Secretary Sambur, the March 2004 General Accounting Office (GAO) report states that it will cost \$11.7 billion to put the "A" in the F/A-22 and

that another \$40 billion may be required to support this program through full rate production. In your recent testimony to this subcommittee, you refuted this conclusion by stating that you had already included about \$3 billion in the President's budget request to support ground attack capabilities. Please provide the justification for why the F/A-22 is the right aircraft for the ground attack role given current and projected threats, capabilities, and vulnerabilities of the F/A-22 platform.

Dr. SAMBUR. Senator, as you are aware, the ability of aircraft to penetrate a complex and integrated air defense system to deliver a weapon on target is contingent upon many factors. These include awareness of the threat, avoidance of the threat, minimizing exposure to the threat, and if necessary, the suppression and or destruction of the threat. In the past, it has taken complex mission planning, coupled with a substantial support package with many aircraft to address each of these factors; often with high risk to the aircraft and aircrews involved.

For the first time, attributes that can overcome or mitigate these challenges can be rolled up into one aircraft—the F/A-22. Using a blend of integrated avionics, stealth, superior maneuverability, sustainable high speed, and combination of weapons, the Raptor has the ability to penetrate and operate in an advanced surface-to-air missile and air threat environment to deliver ordnance on target, with limited exposure and little additional support. The F/A-22 is right for the air-to-ground role because these characteristics make the Raptor lethal and survivable in the most robust threat environments. No other aircraft, present or future, provides the Joint Force Commander with the total capabilities and survivability of the F/A-22.

8. Senator MCCAIN. Secretary Sambur, please provide your analysis justifying the requirement for the number of F/A-22s the USAF will require.

Dr. SAMBUR. The study "Sustaining Air Dominance" validated the Air Force requirement as at least 381 aircraft. This study is classified, but we will make it available for your review.

9. Senator MCCAIN. Secretary Sambur, please provide a detailed list of current and future weapons/munitions that the Raptor will carry and what sensor/software changes will be required for the attack version of this tactical aircraft.

Dr. SAMBUR. The F/A-22 that the warfighter will receive prior to initial operational capability (IOC) will have inherent air-to-ground capabilities using the AIM-120, AIM-9M, GBU-32 (1,000 pound JDAM), and the 20mm cannon. The aircraft has already demonstrated capability with air-to-air weapons, and ongoing JDAM testing will be completed prior to IOC.

In Spiral 2, the JDAM envelope will be expanded to enable supersonic delivery of the weapon. A software upgrade will accompany Spiral 2 to improve pilot-vehicle interface and radar performance.

In Spiral 3A, a robust set of capabilities will be added to the Raptor. Sensor upgrades planned for Spiral 3A include adding air-to-ground modes to the 4th generation active electronically scanned array (AESA) radar and adding Link-16 datalink transmission capability. The new 4th generation AESA radar mode will provide high definition and synthetic aperture radar ground mapping and aided target detection. Spiral 3A will also incorporate small diameter bomb (SDB) on the Raptor. A software upgrade will accompany Spiral 3A to incorporate these capabilities.

Spiral 3B will expand on the capability added in previous spirals. For weapons, Spiral 3B plans to improve SDB capability and incorporate AIM-9X onto the Raptor. Additionally, ground moving indication capability will be added to the radar. As in previous spirals, a software upgrade will be included.

Beyond Spiral 3B, the list of candidates are still being considered. Some possible candidates include adding side-mounted arrays, advanced air-to-air and air-to-ground weapons, and moving target attack capability. These capabilities are projected beyond the FYDP, and they are still being definitized.

10. Senator MCCAIN. Secretary Sambur, please comment on what additional burden will be placed on the tanker fleet by providing an attack capability in the F/A-22.

Dr. SAMBUR. Senator, there should be no additional burden placed upon our tanker fleet due to the additional capability of the Raptor. Since the aircraft carries its weapons internally, the air-to-ground mission will not change the aircraft flight characteristics—there will be little distinction between fuel requirements for an air-to-air mission and an air-to-ground mission.

TANKERS

11. Senator McCAIN. Secretary Sambur, where do we stand with respect to the 20/80 tanker proposal? Specifically, has the USAF renegotiated the unit cost of these tankers, down from \$138.5 million to a figure closer to \$120.5 million, that is, the figure determined to be “fair and reasonable” by the Department of Defense’s own contractor—the Institute for Defense Analysis (IDA)?

Dr. SAMBUR. The KC-767 program is currently paused per the December 1, 2003, memorandum from the Deputy Secretary of Defense. At the time of the memorandum, the price to purchase a KC-767 was \$13 million in fiscal year 2002. IDA’s value was only an analytic estimate—the Air Force has a fixed price after negotiating with Boeing for over a year, with limitation of profit controls and most-favored customer clauses that are both auditable. The controls were seen by the OSD leasing panel headed by the Under Secretary of Defense for Acquisition, Technology, and Logistics (AT&L) and OSD Comptroller as giving the Department of Defense (DOD) a good deal. If profits exceeded limitations, the excess is returned to the taxpayers.

12. Senator McCAIN. Secretary Sambur, how much will reconfiguring the tankers under the 20/80 program with a multipoint simultaneous refueling capability (a “WARPS” system) cost the taxpayers? Develop your answer fully to include figures for total program costs and per unit costs.

Dr. SAMBUR. The KC-767 is more capable than the KC-135E in cargo capacity, passenger capacity, available offload, and has the ability to refuel ALL Air Force, Navy, and Allied aircraft on the same mission regardless of boom or drogue configuration from delivery of the first plane. Currently, the USAF has no estimate of the cost for engineering, to procure the pods, and to modify and strengthen the wings. The new-design refueling pods require aerodynamic testing and engineering to ensure proper performance. Italy is planning to procure these pods for their Boeing 767 Global Tanker Transport Aircraft (GTTA). The pods for us are planned for inclusion in the second spiral of development of the USAF KC-767. Out of the more than 600 current KC-135 and KC-10 tankers, only 40 aircraft are configured to accept 35 pod sets. It should be noted that none of the current pod-equipped aircraft will be retired by the time the initial 100 KC-767s are planned to enter service.

13. Senator McCAIN. Secretary Sambur, will the lease of up to 20 tankers be structured around a “special purpose entity,” as under the original proposal? If so, what additional costs will be incurred by the taxpayers for leasing the tankers as opposed to buying the tankers outright?

Dr. SAMBUR. The lease of 20 planes will be structured around a “special purpose entity.” The structure is quite common in commercial markets. It facilitates investor confidence because it gives investors more direct insight into how their money will be used. In the event of manufacturer bankruptcy or other financial trouble, the investors are at less risk when the lease structure uses a special purpose entity (in contrast to a direct lease by the manufacturer). Interest rate financing is a function of investor confidence. To the extent that this common commercial practice of using a special purpose entity increases investor confidence, interest rates will be lower and this reduces the Air Force’s total bill.

The costs to establish the special purpose entity are borne by Boeing since they are responsible for paying transaction costs. We do not have direct insight into these specific costs since they are a Boeing responsibility.

There are lease specific costs involved with the construction and permanent financing of the tanker lease. Lease costs are best compared to purchase costs on a net present value (NPV) basis, as required by OMB. NPV analysis is the standard both within the Department of Defense and the commercial sector for making business decisions—such as this decision to lease or purchase airplanes. In our report to Congress in July 2003, we demonstrated that lease costs were within 1 percent of purchase costs in net present value terms. The magnitude of the difference is less than 1 percent under a lease 20/purchase 80 scenario.

14. Senator McCAIN. Secretary Sambur, do you agree with Acting Under Secretary of Defense for Acquisition, Technology and Logistics (AT&L) Michael Wynne’s statement that the USAF will obtain budget authority for the acquisition of the tankers at the time of order—not at delivery?

Dr. SAMBUR. When the pause is lifted by the Office of the Secretary of Defense, the Air Force will comply with the Department’s direction on the path forward. We will budget consistent with the congressional authorities that we have been given.

We will put a program in place that meets the warfighter's need for tankers, but which also fits within the Air Force budget.

15. Senator MCCAIN. Secretary Sambur, do you intend for the contracts for this proposal to be executed before or after an Analysis of Alternatives (AOA) has been completed?

Dr. SAMBUR. When the pause is lifted by the Office of the Secretary of Defense, the Air Force will comply with the Department's direction in executing contracts. The AOA is anticipated to complete in August 2005.

16. Senator MCCAIN. Secretary Sambur, the AOA Guidance requires that the tanker program be supported by a valid capabilities document. To that end, the Guidance requires that the USAF generate a new Mission Needs Statement (MNS) and Operational Requirements Document (ORD), now called an Initial Capabilities Document and Capabilities Development Document. Different name, same idea. If the Office of the Inspector General concludes that Boeing established or modified the requirements of the original tanker ORD, do you concur with the position that the contract cannot be executed until a new ORD is performed?

Dr. SAMBUR. It would be inappropriate for me to speculate on the findings of the Inspector General or future directions from the Defense Department leadership. Once the program is released from its current paused status, we will comply with the instructions directed by the Office of the Secretary of Defense.

17. Senator MCCAIN. Secretary Sambur, the Deputy Secretary of Defense promised that I will get a copy of the new contracts and a briefing on them in a timely manner—before they are executed. Will you personally ensure that this will occur?

Dr. SAMBUR. The program is currently paused. When the pause is lifted by the Office of the Secretary of Defense, the Air Force will comply with the Department's direction on the path forward.

18. Senator MCCAIN. Secretary Sambur, I imagine that the contracts here will have cancellation ceilings exceeding \$100 million. In that context, do you agree that the DOD will comply with statutory requirements that call for 30 days written notice to defense committees of the proposed contracts and cancellation ceilings? Please explain your answer fully.

Dr. SAMBUR. Due to the Office of the Secretary of Defense's directed pause in KC-767 program execution, we have not yet defined the terms and conditions of a prospective multi-year procurement contract. If the Air Force is directed to proceed by OSD with a multi-year contract, we will fully comply with congressional authorities and applicable requirements of 10 U.S.C. 2306b, the Federal Acquisition Regulation and its supplements. With regard to any cancellation ceiling provision that establishes a liability in excess of \$100 million, we will ensure that, "... the head of the agency . . . shall give written notification of the proposed contract and of the proposed cancellation ceiling for that contract to the Committee on Armed Services and the Committee on Appropriations of the Senate and the Committee on Armed Services and the Committee on Appropriations of the House of Representatives, and such contract may not then be awarded until the end of a period of 30 days beginning on the date of such notification."

19. Senator MCCAIN. Secretary Young and Admiral Nathman, the MNS for tankers states: "New design, and/or procurement of air refueling [tanker] aircraft must be compatible with all U.S., NATO, and allied/coalition forces receiver-type aircraft. Air refueling [tanker] aircraft shall be capable of refueling receptacle and probe-equipped receiver aircraft on the same mission, as well as refueling multiple aircraft simultaneously."

On June 25, 2002, then Vice Chief of Naval Operations Admiral Fallon conditionally signed off on a Joint Requirements Oversight Council Memorandum on Air Refueling Aircraft (ARA) ORD by stating that "it is a critical requirement for any air refueling tanker to have the capability to refuel two receivers simultaneously." In concurring with the ORD he stipulated to the following, which I quote:

- "Critical: Change sentence to read: 'The aircraft must have the capability to refuel two receivers simultaneously (Threshold).'"
- Admiral Fallon's rationale: "Dual drogues maintain the current refueling capability of the KC-10 and KC-135 aircraft for the probe-equipped aircraft."

Is it still a critical Navy requirement for any new refueling tanker to have the capability to refuel two receivers simultaneously, as Admiral Fallon suggested? I

would like both of you to answer my question as to the Navy's position as stated previously by Admiral Fallon when he conditionally signed off on the ORD on June 25, 2002, and as is also represented in the MNS, which Admiral Fallon noted in his response.

Please provide the information within 2 weeks of notification with respect to this question.

Mr. YOUNG and Admiral NATHMAN. Our requirement remains that any new tanker be capable of refueling two receivers simultaneously. The Tanker Mission Needs Statement validates that requirement and Admiral Fallon's previous statements are consistent with this requirement and, additionally, underscores that the simultaneous capability should exist today in all of the "big-wing" tanker fleet's aircraft types.

20. Senator MCCAIN. Secretary Sambur, are you aware that the USAF MNS and the Navy, Marine Corps, and our allied and coalition partners have a critical requirement for any air refueling tanker to have the capability to refuel receivers simultaneously? If so, then why would you have endorsed a plan to deliver Boeing 767 tankers that will not be capable of simultaneously refueling two receivers when Boeing has demonstrated this capability in Boeing 767 tankers delivered to both Italy and Germany?

Dr. SAMBUR. Senator McCain, the Air Force recognizes the valid requirement for a simultaneous air refueling capability within the Air Force tanker force. As a result, the ARA ORD, which was approved by the JROC, included the simultaneous refueling capability requirement as a Spiral 2 threshold. A Spiral 2 threshold is a requirement that could be deferred until later deliveries.

While Boeing plans to deliver tankers to Italy with a simultaneous refueling capability, the development and testing are still ongoing. Also, you should note that the Italian aircraft will not meet all the USAF requirements. Germany did not procure any Boeing 767 tankers, but actually procured four Airbus 310 tankers, which do not have a boom and therefore cannot refuel any USAF aircraft. Regarding simultaneous refueling capability, the Air Force currently possesses the capability through 20 KC-135 and 15 KC-10 aircraft. The Air Force is retaining all of these aircraft and will continue to support the Navy/Marine aircraft with these assets. Future analysis will determine how many future aircraft need the simultaneous capability. Additionally, all KC-767 aircraft will have the capability to refuel both Air Force and Navy/Marine receivers on the same sortie—a significant capability over the existing KC-135 fleet.

21. Senator MCCAIN. Secretary Sambur, on February 24, 2004, Acting Under Secretary of Defense (AT&L) Wynne transmitted to you Guidance for Conducting an AOA on Recapitalizing the KC-135 Fleet. This Guidance clearly strives for transparency, objectivity, and a clear methodology that takes into account joint requirements. None of these elements were present in the original ORD for tankers. This was because, as these documents indicate, Boeing "modified and established the requirements to prevent an AOA from being conducted." In other words, the ORD was changed not to reflect current tanker capabilities and joint Service requirements, but to improperly tailor the requirements to accommodate a specific type of aircraft, namely the Boeing's KC-767A. Apparently, the Office of the Secretary of Defense has realized this and has issued new guidance to the USAF directing them to conduct a new initial capabilities document. I understand that the Air Force will also conduct a capabilities development document. Both of these are intended to supercede the original MNS and ORD, respectively. If the original ORD is so fundamentally flawed that it cannot support the USAF's long-term plan to recapitalize the KC-135 fleet, how could you possibly expect it to be valid enough to justify the current 20/80 deal? Similarly, how do you expect to finalize the current tanker proposal if it is neither supported by a new AOA nor a valid capabilities-based document? Please explain your answer fully.

Dr. SAMBUR. Senator McCain, the ARA ORD was written by the warfighter, fully vetted through the Services and combatant commanders, and ultimately approved by the JROC. As the ARA ORD proceeded through the normal requirements validation process, it underwent multiple levels of review. The KC-767 tanker will meet the warfighter's requirements defined in the ARA ORD and is the initial step in recapitalizing the air refueling fleet. The AOA will provide the Air Force with additional analysis—necessary to continue recapitalizing the remaining KC-135 fleet.

22. Senator MCCAIN. Secretary Young, Admiral Nathman, and General Hough, if you learned, immediately before executing a contract for a given program, that the ORD that was used to validate that program was in fact invalid because a contrac-

tor improperly modified or established the requirements of the ORD, would you execute that contract or would you consider this a compelling reason not to execute the contract for that program?

Mr. YOUNG and Admiral NATHMAN. We would not award a contract if the requirement it intended to address was invalid. The fact that a contractor may have had some involvement in developing a requirement, however, does not automatically mean the requirement is invalid. In fact, it should generally have no impact on the validity of the requirement. Approving operational requirements is clearly an inherently governmental responsibility and, ultimately, is always performed by government personnel. Contractors do not approve requirements. If we were advised of potential issues with a requirements document immediately before award of a contract, we would generally postpone award until we could get the organization responsible for its establishment to validate the requirement. In some instances, we might proceed with contract award—it would depend on such factors as the nature of the potential issues, the urgency of the requirement, the likely impact on the contract of a post-award change in requirements, and whether proceeding with contract award, in the face of the improper behavior, would cast doubts on the integrity of the procurement system.

General HOUGH. A warranted contracting officer is the only individual with the authority to obligate the Government and award and execute a contract. The contracting officer is legally bound to comply with all applicable statutes and regulations. In the scenario you have provided, there are potentially multiple violations of statutes or regulations that may preclude contract award or execution. Any substantive determination regarding the legality of any contractual action is contingent upon the application of the law to the facts. In the absence of specific facts, it would not be prudent to recommend a course of future action.

23. Senator McCAIN. Secretary Sambur, on April 3, 2003, you testified before this subcommittee that the Air Force would not conduct an AOA for tanker aircraft before executing the Boeing KC-767 tanker lease for three reasons:

First of all, you said “we [Air Force] have made a compelling case as ‘Why to lease [Boeing 767 tankers].’” However, on June 20, 2003, OSD Program Analysis and Evaluation (PA&E) Ken Krieg wrote to Secretaries Wynne and Zakheim, “We find that leasing provides no inherent economic efficiencies relative to direct purchase of tankers and is, therefore much more expensive in the long run.” In fact, Mr. Krieg went on to state in his memo that leasing would cost \$6 billion more than a direct purchase. Do you still agree that the Air Force has made a compelling case to lease the Boeing 767 tankers?

Dr. SAMBUR. Subsequent to the June 20, 2003, memorandum, the Department of Defense, including PA&E, reviewed and supported the final findings in the “Report to the Congressional Defense Committees on KC-767A Air Refueling Aircraft Multi-Year Lease Pilot Program”, dated July 10, 2003. The report stated, “the Department of Defense determined that the net present value of the multiyear lease option and a traditional purchase option results in a NPV favoring a purchase of \$150 million.” The Air Force supports the KC-767 program to lease 20/buy 80 aircraft. The Air Force has an urgent and compelling need to start recapitalization of the KC-135 tanker fleet. The proposed lease gets this process started quickly and the currently negotiated contracts offer an affordable path. When the pause is lifted by the Office of the Secretary of Defense, the Air Force will comply with the Department’s direction on the way ahead.

24. Senator McCAIN. Secretary Sambur, second, you said “. . . we are concerned about the safety, about the corrosion of Es [KC-135Es].” You went on to say, “I know there has been an Air Force study a couple of years ago [KC-135 Economic Service Life Study (ESLS)] that seems to indicate that there is life expectancies of these KC-135s that is far greater than we are now telling you. But the actual finding is that the corrosion is very serious. It is much more serious than the study ever anticipated.”

However, the Congressional Research Service (CRS) disputes your claim. It has told us that, since the ESLS, the Air Force has not conducted a thorough corrosion assessment. In that context, the fact is that no data and analysis invalidates the conclusions of the ESLS (and Tanker Requirements Study), which indicate that the need to recapitalize the fleet is not urgent. If the very thorough KC-135 ESLS [which was drafted by Boeing, Headquarters USAF, USAF Active Duty, Reserve, and Air National Guard participation, and Tinker Air Force Base logistics center] was so wrong, then why did the USAF have to doctor corrosion documents that were sent to this committee?

Dr. SAMBUR. The KC-135 Economic Service Life Study was compiled using fiscal year 1999 cost data. Since then, more accurate cost data has become available, for example the cost estimate for the E model engine strut repair was estimated at \$1 million per aircraft in 1999, but the actual costs are nearly \$3 million per aircraft. Regarding the corrosion documents (copies of placards on display during a tour of the Oklahoma City Air Logistics Center KC-135 line) that were provided to the Committee at the request of a professional staff member, Secretary Roche stated in his letter 27 February 2004, "You can be assured that, far from any assertions to the contrary, factual data—and only factual data—were presented to the PSMs during that trip. As those placards featured 'Tinker-only' information, and because our installations and logistics professionals strive to present a complete and timely picture of our fleet, they amended the placard file by omitting the 'Tinker-only' occurrence factors. Above all, they wanted to eliminate the possibility that the data at Tinker could be misunderstood as 'fleet-wide' corrosion data . . . the Tinker professional wanted to avoid the confusion that may have resulted from incomplete data. After the PSM requested the exact files shown on the tour, those files were provided along with highlighted, auxiliary notes to ensure that those placards could be seen in their proper context."

While corrosion is an issue, the greater issue is that this 43 year-old fleet continues to age. As we sustain aircraft longer than we ever have, we are learning how to sustain them at the same time. As these systems have aged we have encountered grounding situations such as two incidents between 1999 and 2000 when stabilizer trim actuator problems affected 139 aircraft in the first incident and 161 in the second one. Additionally, the E models are currently under flight restrictions due to their engine struts. The likelihood of finding more of these surprises or unknowns increases with time. We do not know how an aircraft manufactured with 1950s technology will stand up to 45, 50, or 60 years of operation. We can analyze, model and predict, but there are and will continue to be more unknowns . . . unknowns that we cannot allow to ground the backbone of our air refueling capability.

25. Senator MCCAIN. Secretary Sambur, finally, you said ". . . we are going forward with the lease because it is the most affordable way of getting assets in the shortest possible time." Do you feel that in light of the five ongoing investigations and criminal cases on the Boeing 767 tanker lease/procurement that this is still the best option for the USAF to pursue? Your statement suggests a pressing urgency to recapitalize the KC-135 tanker fleet that is not supported by USAF budget requests or studies. Since the Boeing 767 tanker lease/procurement has never been included in the President's defense budget request alongside other competing requirements, it suggests that tanker recapitalization has never been a pressing concern for the USAF. Furthermore, the conclusions of the KC-135 ESLS, which examined the cost of ownership (projected sustainment and operational costs) and availability of the aircraft to the warfighter, did not support your position, so I request that you base your answer on statistically derived, well-formulated conclusions rather than anecdotal evidence.

Dr. SAMBUR. As you are aware, the KC-767 program is currently paused per a December 1, 2003, memorandum from the Deputy Secretary of Defense. It would be inappropriate to speculate on the findings of ongoing studies and investigations. What is clear is that the KC-135 fleet's average age is 43 years old—we had an event in 1999 that grounded 40 percent of the fleet and the KC-135E are presently under flight restrictions. The need to begin recapitalization is clear and present. Costs to support this aging fleet are rising and the risk of operating a fleet of over 500 aging aircraft has become unacceptable. We fully support the decision by the Deputy Secretary of Defense to pause this program. We will be prepared to follow the direction from the Department of Defense, which will have the added benefit of the assessments to which you refer.

QUESTIONS SUBMITTED BY SENATOR HILLARY RODHAM CLINTON

C-17 AIRCRAFT PROCUREMENT AND AGING C-5 AIRCRAFT

26. Senator CLINTON. Secretary Sambur and General Keys, in recent testimony on March 10, 2004, before this committee's Seapower Subcommittee, General Handy, the Commander of U.S. Transportation Command, spoke of the need to continue the C-17 program beyond the current 180 airplanes. New York is very interested in this news for several reasons. Not only is the State of New York among the top five suppliers to the C-17 program, but also our Air National Guard Unit at Stewart Air National Guard Base (ANGB) in Newburgh is equipped with aging

C-5 aircraft that could possibly be replaced with new C-17s. Further, General Handy described today's strategic airlift system in the DOD as not being capable of meeting the minimum requirements of Mobility Requirements Study—2005 (MRS-05) which is 54.5 million ton-miles (MTM) a day. In addition, he stated that the new strategic airlift study commencing next year will no doubt produce a significantly higher MTM requirement.

What is the USAF's plan for procurement of additional C-17 aircraft above the current authorized and appropriated 180 aircraft to ensure an adequate airlift force, and does this plan address both the active and Reserve components, consistent with the total force concept?

Dr. SAMBUR and General KEYS. Our current modernization plan includes procuring 180 C-17s as well as modernizing as many of our C-5s as is required to meet validated air mobility requirements. Results from future studies and analyses, such as the Mobility Capabilities Study (MCS), may indicate an increase in strategic airlift requirements. However, the current plan stands at 180 C-17s. Our future plans include maintaining the partnership that exists between the active and Reserve component in both associate and unit equipped relationships. We will continue to rely heavily on the air mobility contributions of our Total Force partners.

27. Senator CLINTON. Secretary Sambur and General Keys, what is the USAF's transition plan for C-5 bases such as Stewart ANGB (the only Air National Guard unit qualified to operate and maintain the C-5), and what are your current plans for replacing the C-5s at Newburgh with C-17s as part of your total force modernization efforts?

Dr. SAMBUR and General KEYS. Our Total Force Modernization Plan for C-5 units, including Stewart, involves programs to modernize C-5 avionics and other aircraft systems, to include installing new engines. This will maintain a unit's ability to be an integral and valuable Total Force contributor to our Nation's overall air mobility capability far into the future. Currently, there is no plan to transition the C-5 unit at Newburgh to C-17s.

28. Senator CLINTON. Secretary Sambur and General Keys, what is 222+, which we often hear as the desired number of C-17s?

Dr. SAMBUR and General KEYS. Our current airlift force structure plan is based on the Mobility Requirements Study (MRS)-05, completed in January 2001. The study indicated that 180 C-17s and 112 C-5s was the appropriate airlift fleet mix to maintain moderate risk and meet requirements. The new National Military Strategy (NMS) with the 1-4-2-1 construct has different assumptions and drives new requirements. The "222+" indicates that 222 or more C-17s may be needed to mitigate risk, increase operational capability/flexibility, and achieve an appropriate lift capacity. The actual requirement will become more clear when the MCS completes in 2005.

29. Senator CLINTON. Secretary Sambur and General Keys, what combination of C-17s and modified C-5s will be required in the future force structure concept?

Dr. SAMBUR. Our current airlift force structure is based on the MRS-05, completed in January 2001. The study indicated that 180 C-17s and 112 C-5s was the appropriate airlift fleet mix to maintain moderate risk and meet requirements. The new NMS with the 1-4-2-1 construct had different assumptions and drive new requirements. Taking into account the increasing support needed outside the primary warfight (i.e. Homeland Defense, Special Operations, Support for other Combatant Commands), the future force structure may change. The actual requirement, and future force structure, will become clearer when the MCS completes in 2005.

RETIREMENT OF LEGACY AIRCRAFT

30. Senator CLINTON. Secretary Sambur and General Keys, as legacy aircraft are retired from the Reserve component, what is the USAF's plan to replace those aircraft and ensure that those flying wings are maintained as part of the future force structure of the USAF?

Dr. SAMBUR and General KEYS. We are retiring legacy aircraft due to the increasing costs associated with maintaining those legacy aircraft. The previously briefed Air Mobility and Tanker Roadmaps highlighted our plan to recapitalize our tanker and airlift fleets while maintaining the proper mix of Active Duty and Reserve component flying wings. Additionally, the Active Duty, Guard, and Reserve are engaged in daily discussions regarding how best to transform our Air Force while maintaining and/or enhancing the significant contributions of the Air Reserve components.

31. Senator CLINTON. Secretary Sambur and General Keys, in the midst of the upcoming base realignment and closure (BRAC) round, what impetus drives the USAF to retire legacy aircraft when a pathway forward for modernization is not clear?

Dr. SAMBUR and General KEYS. We are retiring legacy aircraft at the same time we are quantifying requirements to acquire additional airlift and air refueling capability because of the increasing costs associated with maintaining those legacy aircraft at usable levels. As legacy aircraft continue to age, logistics support costs continue to increase to a point that it is wiser to invest in modernizing airlift and air refueling capabilities. The Air Force realizes the need to remain flexible to meet ever-changing global challenges in a fiscally constrained environment. However, we cannot delay efforts to modernize the legacy fleets, as some already average over 40 years of age.

32. Senator CLINTON. Secretary Sambur and General Keys, the retirement of legacy aircraft without the concurrent stationing of modernized aircraft will place certain installations at a military value disadvantage for BRAC 2005 and skew the BRAC analysis. Please provide your insights on this topic.

Dr. SAMBUR and General KEYS. I do not believe it will. Military value is the primary consideration in making base closure or realignment recommendations. That military value is based upon the value of the installation consistent with the selection criteria, not necessarily the unit that is currently assigned. In fact, most installations will have equipment and/or mission changes over the next 20 years. The role of the BRAC process is to determine what infrastructure we need to keep to accommodate current and future missions.

FUTURE USAF TANKER REQUIREMENTS/STAGING ISSUES

33. Senator CLINTON. Secretary Sambur and General Keys, any future tanker acquisition program will include a review of two key elements, aircraft utilization rates and basing. Future tankers will have tremendous flying capabilities and will be capable of flying virtually all day long. The airlines do this to maximize profitability. The USAF could also do this, especially by fully utilizing capable bases like Niagara Falls Air Reserve Base to be airline type hubs or staging bases. For example, Niagara has the billeting, ramp, runway, fuel facility, et cetera, where this could be done efficiently and at a tremendous cost saving to the government. Niagara could easily support an active duty detachment in support of the staging concept. Because of the tremendous capabilities of any modern tanker aircraft, do you have a plan to increase the sortie generation rate of any future tanker?

Dr. SAMBUR and General KEYS. Senator Clinton, sortie rate (sortie/day) is the number of sorties per aircraft per day that can be scheduled and confidently executed. Increased sortie generation in conjunction with increased availability is one method for providing additional tanker support to the warfighter. By recapitalizing our aging tanker fleet, the Air Force seeks improvements in both areas. Although wartime sortie generation rates are classified in the USAF War and Mobilization Plan, the Air Force does intend to increase the sortie generation rate on future tankers. As written in the ARA ORD, the Air Force requires sustained sortie rates at least 8 percent greater than the current KC-135 sortie rate for the air refueling.

34. Senator CLINTON. Secretary Sambur and General Keys, as a result of the high demand for refueling sorties in the Northeast, what is the feasibility of integrating the future tanker into the Reserve component?

Dr. SAMBUR and General KEYS. Currently, a strong Air Reserve component tanker presence exists in the Northeast with 50 Air National Guard (ANG) KC-135 E-models across 6 locations. This is in addition to 32 active duty KC-10s. Initial delivery of the follow-on tanker will be to the active duty to ensure maximum utilization on a daily basis. As we continue recapitalization of the KC-135 fleet, the follow-on tanker will be fully integrated across all mobility forces, including the Air Reserve component. The detailed basing plan will be founded upon analyses currently being conducted.

35. Senator CLINTON. Secretary Sambur and General Keys, would the concept of staging the future tanker at the three Northeast Tanker Task Force sites (Bangor, ME; Niagara, NY; and Pease, NH) be the optimal way to support the Atlantic Air Bridge, which supports operations in Europe and Southwest Asia?

Dr. SAMBUR and General KEYS. Yes, staging tankers as we currently do at these three bases—combined with the proximity of other east coast and European loca-

tions—optimizes Atlantic Air Bridge operations. This, along with established infrastructure to support staging operations, makes for the most efficient support to the war fighter. The Air Force continually reviews our global air refueling requirements. Any future tanker assets would be fully integrated into an operational concept that ensures the Northeast Tanker Task Force could continue its outstanding job supporting the European or Southwest Asia's combatant commander air refueling needs.

FIRE SCOUT

36. Senator CLINTON. Secretary Young and Admiral Nathman, I have learned that the Navy has cut the number of Fire Scout UAVs to be purchased from the \$36.5 million in the fiscal year 2004 budget from eight to two. Congress directed the Navy to purchase eight vehicles with these funds. Can you explain this change in direction?

Mr. YOUNG and Admiral NATHMAN. The nonrecurring design and development effort for Fire Scout has not been completed and the funding provided in fiscal year 2004 was not sufficient to complete the nonrecurring engineering and procure eight air vehicles at the same time. Furthermore, in view of the Army choosing the upgraded version of Fire Scout for their Future Combat System Class IV UAV, the best use of the funds was to complete the design modifications that meet both Navy and Army requirements for a common air vehicle that would accommodate Service unique missions. Two Fire Scout air vehicles will be procured along with the nonrecurring engineering efforts. The benefit will be lower production costs for both the Navy and Army with a potential savings for common maintenance and support.

The CNO's fiscal year 2005 Unfunded Program List of March 1, 2004, identifies critical programs not funded in the fiscal year 2005 President's budget request. Included in this list is \$48 million for the Fire Scout program. The additional money would fund the procurement of six LRIP Fire Scout air vehicles and associated payloads and support equipment. This equipment, in conjunction with equipment already procured, would provide two complete Fire Scout VTUAV Systems for testing on the Flight 0 LCSs.

[Whereupon, at 4:00 p.m., the subcommittee adjourned.]

**DEPARTMENT OF DEFENSE AUTHORIZATION
FOR APPROPRIATIONS FOR FISCAL YEAR
2005**

TUESDAY, MARCH 30, 2004

U.S. SENATE,
SUBCOMMITTEE ON AIRLAND,
COMMITTEE ON ARMED SERVICES,
Washington, DC.

ARMY AVIATION PROGRAMS

The subcommittee met pursuant to notice at 2:00 p.m. in room SR-232A, Russell Senate Office Building, Senator Jeff Sessions (chairman of the subcommittee) presiding.

Committee members present: Senators Sessions and Lieberman.

Majority staff members present: Ambrose R. Hock, professional staff member; Gregory T. Kiley, professional staff member; and Thomas L. MacKenzie, professional staff member.

Minority staff members present: Daniel J. Cox, Jr., professional staff member; Creighton Greene, professional staff member; and Michael J. McCord, professional staff member.

Staff assistants present: Michael N. Berger and Sara R. Mareno.

Committee members' assistants present: Arch Galloway II, assistant to Senator Sessions; and Frederick M. Downey, assistant to Senator Lieberman.

**OPENING STATEMENT OF SENATOR JEFF SESSIONS,
CHAIRMAN**

Senator SESSIONS. The Airland Subcommittee will come to order.

Today the Airland Subcommittee meets to receive testimony on the Army's amended fiscal year 2005 budget request for those aviation programs for which this committee has oversight responsibility. I would like to thank our distinguished panel for taking time out of their busy schedules to be with us. Welcome.

Lieutenant General Cody, it is a pleasure to see you again, the Deputy Chief of Staff for Operations and Plans. Major General Joseph Bergantz, Program Executive Officer for Aviation; and General Edward J. Sinclair, Commanding General, United States Army Aviation Center, Fort Rucker. It is good to see you again, General Sinclair.

We are delighted you are here and thank you for your testimony.

As we meet today, Army aviation is operating at extraordinary tempo in Iraq, Afghanistan, and other places in the world. Soldiers operating these systems have performed magnificently, as one

would expect from our armed services. In the hands of well-trained soldiers, aviation systems have been, and will continue to be, relevant combat multipliers.

Over the past several years, the Airland Subcommittee supported the Army's transformation and development of its future combat systems. We also supported the Comanche armed reconnaissance helicopter. However, we have also expressed our concern regarding the ability of the Army to fund this transformation. Frankly, we never understood fully how all the budget demands were going to be met as we moved towards transformation.

On September 30, 2003, the Chief of Staff of the Army (CSA) directed a top-to-bottom review of Army aviation as one of his 16 focus areas. The CSA's guidance was to make Army aviation a capabilities-based maneuver of armed optimized or joint fight with a shortened logistics tail. Last month, the Army announced the initial results of the Aviation Task Force. A significant recommendation was to reallocate Comanche funds to improve the overall capabilities and health of the aviation force.

Comanche represented 40 percent of the current aviation budget and 47 percent of the aviation budget in the extended planning period. By reallocating approximately \$14.6 billion over 2004 through 2010, the Army is now able to restructure Army aviation to meet current and future requirements.

While the Comanche's termination may be the right decision for the Army, and though some would disagree, your testimony today will help this subcommittee understand the rationale for the termination and the near-term and long-range impacts on Army capabilities. The main assumption I would use, as you explain the long-range impact, is that all the \$14.6 billion will remain solely for Army aviation.

The subcommittee is also interested in hearing about the progress of other aviation programs, such as the Apache Block III upgrade, the UH-60M Black Hawk program. We are interested in the Army's aviation restructure, evolving doctrine, and training to include Flight School 21 and the Army's attempt to modularize its aviation force. We are concerned with the requirements associated with that modularity and how the Army intends to fund this important decision.

Last but not least, we want to discuss the Army's progress on unmanned aerial vehicles (UAVs). I am very interested in their role in the transformed aviation force and within the future combat systems based units of action. To that end, I hope I hear how your acquisition and training plans are evolving, as well as the collaborative work you are doing with other Services.

Thank you again, gentlemen, for your service to America, for those who work with you to give tireless hours that have helped us maintain air dominance, helped us provide the highest degree of technology and mobility to our soldiers, making them more lethal to the enemy and at less risk themselves.

I want to thank Senator Lieberman for his leadership on this subcommittee. He clearly understands our national defense issues. He has been a student of it. He believes in this country and wants to see it strong, vibrant, and a positive force in the world.

Senator Lieberman.

STATEMENT OF SENATOR JOSEPH I. LIEBERMAN

Senator LIEBERMAN. Thanks, Mr. Chairman, for your kind words. It continues to be an honor for me to work with you on behalf of our national security and our men and women like the three honorable gentlemen before us today, who carry it out. I thank you for this partnership, and I thank the witnesses for all that they have done to protect America and all we stand for.

For a number of years, I have watched the Army struggle with its aviation modernization program. Here is what the overall modernization program—as the chairman indicated, the Army confronted the vexing problem of how to transform for the future, while maintaining current readiness. The central problem has been what it so often is around here and in life, insufficient funding to do both. But that is exactly what the Army tried to do.

The Army strongly advocated for Comanche as the aviation centerpiece of its transformation effort, calling it, among other things, the quarterback of the battlefield of the future. But while claiming that the Comanche was its highest aviation priority, unfortunately the Army, regularly, was forced to under-fund the program as it struggled to recapitalize and modernize its existing and aging aviation fleet.

As a result, the Comanche program was restructured six times in its 2-decade history, the last time 2 years ago—less than 2 years ago, in fact. Ironically, it seemed to me that the last restructure solved the program's problems. It was on-cost and on-schedule in meeting or exceeding every milestone objective. But because of budget pressures, the recent success of the Comanche program did come at the cost of the remainder of the Army aviation force, which was itself, underfunded.

For instance, the Army limited the procurement of Black Hawk helicopters, relying on annual congressional additions to keep the production line open. With the overdue retirement of the H-1 Huey utility helicopter, the Army, and particularly the Army National Guard, found itself short of helicopters for the Reserve component.

More troubling, I have watched in dismay over the years as the Army was pressured to delay, and even recently terminate, its effort to upgrade aircraft survivability equipment, taking risks that we should not have put you in a position to take. Now comes the decision on Comanche to terminate it, which to me was a shocking decision, shocking in the sense it was unexpected because the budget submitted just 3 weeks before had included \$1.2 billion for the Comanche program.

Of course, with it came the decision to move the funding to correct long-standing problems in the rest of the aviation force, which makes it certainly look more like a fiscal judgment than a judgment based on a recognition of a changed operational environment.

So, today I want to ask some questions and hear about the analysis that led the Army leadership to make this decision, and particularly the analysis that indicated that Comanche is somehow less relevant today. I must say, as I come into the hearing, that part of the analysis that I have heard on previous conversations I find troubling, which is that the conflict in Iraq demonstrates that the characteristics of Comanche are less necessary or less relevant.

But obviously, the next battle may look a lot different than the battle in Iraq. The new enemy may have radar and more sophisticated defensive and offensive capability against helicopters, that will make critically necessary the stealth capability Comanche, and only Comanche, would give our commanders. In fact, in Kosovo, we faced radar-guided missiles. So, it is not just the putative battlefield of the future against a sophisticated great power like China or Russia, in which we would have to worry about that.

So, my questions are as follows: What now is the vision for Army aviation for the future? Does the aviation component of Army transportation now rely solely on the recapitalization and limited upgrade of existing platform and the purchase of non-developmental or less sophisticated light utility and armed reconnaissance helicopters? How does the Army intend now to acquire the capabilities that Comanche was supposed to provide and we may well need the next time we go to war?

I must say, here, that seeing that the Army is going to pursue a joint multi-role helicopter in the future is not, at least for me, an adequate answer; not only because it is so far in the future but also because I wonder what indications we have had yet that the other Services are interested in such a project.

Assuming that there will be enough commonality in requirements to make such a helicopter feasible may not be an accurate assumption. If it is not, with the same budget pressures the Army faces today, will the Army itself then find itself forced again to fund an expensive new helicopter program? How does the Army intend, finally, to ensure that the \$6.9 billion previously invested in Comanche is not wasted, that there is a process whereby technologies developed in the Comanche program, if it is to be terminated, will be transferred to planned upgrades to the existing force or returned to the tech base for further development?

Those, Mr. Chairman, are some of the important questions that I hope we will address today. Again, I thank the witnesses for being here. This is an important hearing. I thank you, Mr. Chairman, for your continued outstanding leadership.

Senator SESSIONS. Thank you, Senator Lieberman. You raise some very important questions and I am glad you are a member of this committee. I think they are questions that we need to answer. I know you have thought about those questions, and we will be getting into some of that in more detail as time goes by.

General Cody, I believe you will start with a statement; and then we will hear from the others as you choose.

**STATEMENT OF LTG RICHARD A. CODY, USA, DEPUTY CHIEF
OF STAFF FOR OPERATIONS AND PLANS, U.S. ARMY**

General CODY. Thank you, Mr. Chairman. With your concurrence, what I would like to do is have a small opening statement, then defer to General Bergantz and General Sinclair for their statement. Then what I would like to do, with your concurrence, is, based upon the questions that you and Senator Lieberman have teed up, I have four slides that will get to the heart of some of the issues. If I could brief those and then take questions, it might help us all.

Senator SESSIONS. That will be fine. You have given us a witness statement that is impressive; so, we will make that part of the record.

General CODY. Thank you very much. Mr. Chairman, Senator Lieberman, I appreciate the opportunity to appear before you today to provide an update on the state of Army aviation, which I think is very critical. I am going to show you, I hope, as well as my esteemed colleagues, how we intend to meet our current operational requirements, while simultaneously transforming Army aviation to the future force that not only entails Army aviation but also the modularity and the FCS-equipped future force.

I would like to thank the committee for your support and for the faith you have shown throughout the global war on terrorism for our American sons and daughters, as they selflessly and tirelessly serve our Army and our Nation at war. It is important to me as a father. I have two sons who just returned from Iraq, who are Apache pilots with the 101st, and they, too, enjoy your support.

This is a historic time for our Army and our aviation force. The contributions of Army aviation to combating and to fighting terrorism, to defeating the Taliban and al Qaeda in Afghanistan, to ousting Saddam Hussein, and to preserving peace in the Balkans is and continues to be a vital resource for our combatant commanders. We are applying three times as many hours in support of Operation Enduring Freedom (OEF) and Operation Iraqi Freedom (OIF), as compared to our annual home rates.

The environment and operational tempo have placed incredible wear and tear on our fleet. While we have asked a lot of our aviation systems in the past 2½ years, we have also asked a heck of a lot of our pilots, and especially our crew chiefs, who have maintained these great aircraft.

In recognition of this, Mr. Chairman, you have already discussed that with General Schoomaker, our Chief of Staff, and included Army Aviation Re-Look as part of his focus areas. General Sinclair and General Bergantz were part of that task force.

The task force looked at about 108 recommendations, which were a result of a very comprehensive review, to include, as Senator Lieberman pointed out, the Kosovo campaign, of which I was part of, Task Force Hawk, in 1999 when we discovered some cracks in the capabilities of our fleet, as well as training and as well as our modernization accounts. The task force took a look at across the full spectrum of seven major Army studies as they went through this, and it was very comprehensive.

We owe it to our soldiers now who are out there in the sand and the dirt, fighting in harm's way, to take those 108 recommendations and reset Army aviation, not only for this fight but also for the future. Our mission is to be ready and relevant when called upon. The future operational environment demands that we have trained, standardized, and modular units in aviation that can fight not only with our modular units in the Army but also as a joint force. We need to be able to leverage the joint fires and the joint force that this great Nation has.

Based upon our current and projected aircraft inventories and optimization of the force as a key parameter, we are going to restructure the current, nonstandard aviation formations we have.

We will form up 11 active duty, 2 Reserve component multi-functional aviation brigades, and 6 aviation expeditionary regiments in the Army National Guard. The aviation designed incorporates lessons learned directly from recent operations and corrects deficiencies in our current structure; it also moves the Army aviation structure to mirror what we are doing with our modularity and our FCS unit of action force.

By reallocating the money from Comanche, about \$14.6 billion, during fiscal year 2004 to 2011, that would have bought 121 Block I Comanches, the Army will be able to restructure and enhance our \$100 billion investment in the total aviation force.

The net result of this reallocation in 2004 through 2011 is the procurement of over 900 new aircraft, about 850 that were not in the budget; the recapitalization of more than 1,000 aircraft; and the modernization of 1,400 aircraft to increase their capabilities; but more importantly, to bring some of those fleets up to the full potential because of lack of modernization dollars in the past.

We have also targeted, as number one, survivability equipment, as well as maintainability and supportability. This represents a revamp in the modernization and recap of over 70 percent of our rotary wing fleet. But most importantly, this reallocation will fund enhanced aircraft survivability across the fleet that we need so desperately.

In short, we are fixing all aspects of Army aviation from the way we organize, from the way our formations will look. We are researching how we want to look and fight in the future. This is no small undertaking, as we are engaged in the global war on terrorism. We have the right soldiers, the right leaders, and certainly the right support from Congress to be able to get this done.

Mr. Chairman, that concludes my remarks. I look forward to your questions.

[The prepared statement of General Cody follows:]

PREPARED STATEMENT BY LTG RICHARD A. CODY, USA

INTRODUCTION

Chairman Sessions, Senator Lieberman, distinguished members of the committee, we appreciate the opportunity to appear here today to provide an update on the state of Army aviation and how we intend to continue meeting current operational requirements while we also prepare for the future.

We are witnessing historic times in our Army and our aviation force. As a former Division Commander for the 101st Air Assault Division and now as Deputy Chief of Staff, G-3, I can testify that our Army in general, our aviation leaders, and soldiers are well-trained, ready, and committed. I thank this committee for your resolute support, concern, and faith in America's sons and daughters, who serve our Army and our Nation. I believe you all would agree that while aviation hardware and other systems are vital components of our Nation's defense, our most precious and irreplaceable assets are the great Americans operating and repairing them.

General Peter Schoomaker, Chief of Staff, Army (CSA), directed a top-to-bottom review of Army aviation in August of last year. The Chief's guidance was to make Army aviation a capabilities-based maneuver arm optimized for the joint fight with a shortened logistics tail. An Aviation Task Force was formed with a select group of aviation professionals under the leadership of MG James Thurman, Aviation Task Force Director; MG Joseph Bergantz, PEO-Aviation; and BG Edward J. Sinclair, Commanding General, United States Army aviation Center and School, who are in attendance today. Although the Task Force is still working through many of the details associated with the 108 recommendations required to transform this force, I will provide an overview of some key initiatives the Army will implement to prepare the force for ongoing responsibilities and to pace aviation transformation

relative to the rest of the Army. But first, I would like to discuss the context and present state of our aviation force and briefly highlight lessons learned from current operations.

CURRENT AVIATION FORCE AND LESSONS LEARNED

Army aviation currently has over 450 aircraft deployed in Bosnia (SFOR-13), Afghanistan (OEF-5) and Iraq (OIF-2). Since September 2001, the operational tempo for Army aviation is the highest it has been since the height of the Vietnam conflict. We are flying three times as many hours in support of Operation Iraqi Freedom (OIF) and Operation Enduring Freedom (OEF) as compared to annual home station rates and the majority of those hours are under combat conditions. The contribution of Army aviation to combating terrorism, defeating the Taliban, ousting Saddam Hussein, and preserving the peace on the Sinai, Korean Peninsulas, and in the Balkans is and continues to be a vital resource for our combatant commanders. However, this success has not been achieved without a price.

The Army has lost 44 aircraft (an additional 23 are pending repair analysis) in hostile and non-hostile incidents since 1 October 2001, and a total of 38 aviation soldiers have given their lives in service to their nation and to the accomplishment of these missions. These losses have not been without purpose. They have informed us for the future and have placed an unprecedented sense of urgency in improving our capabilities, systems, and doctrine.

Army aircraft and aircrews have performed superbly at an unparalleled pace in one of the harshest, most unforgiving environments on the planet. The environment and operational tempo have placed incredible wear and tear on our fleets. We have initiated an aggressive campaign to reset our deployed aviation systems to a higher state of readiness than when deployed. The Army is planning to expend \$1.6 billion (fiscal year 2004) to reset 1,054 aircraft as well as aviation support equipment. Reset includes special technical inspection and repair at unit locations and depot repairs for crash and battle damage aircraft. The impacts of desert-induced damage led us to fund approximately \$55 million (fiscal year 2004) in Desert Kit improvements including aircraft engine inlet barrier filters, auxiliary power unit inlet barrier filters, OH-58D hydraulic filters, ALQ-144 filters, rotor blade protection and aircraft covers. All deploying aircraft will also receive these upgrades. The magnitude and impact of this initiative is that nearly 60 percent of the Army's tactical aircraft fleet is currently either in reset or deployed.

At the end of the day, our mission is to be ready and relevant when called upon. As recently witnessed for OIF and OEF, there may not be sufficient time to train before we go. Therefore, we need to have trained, standardized and modular units that are fully connected to the combined arms team and joint forces.

Our aviation leaders and troopers performed admirably, adjusting to ad-hoc task organizations during OIF and OEF. Today our aviation structure is designed to support five different active component divisional organizations (air assault, airborne, heavy division, light division, Korea) and two different Reserve component structures. Specific divisional structures led us to specific, but different aviation organizations. For example, we have 18-ship Apache battalions in heavy divisions, but 21-ship battalions at Corps and 24-ship battalions in the 101st Air Assault Division. We quickly discovered that 18-ship Apache battalions did not provide enough aircraft for continuous close support to maneuver commanders in non-contiguous operations. Additionally, aviation forces were lift deficient at almost every level. Our units were extremely taxed accomplishing intra-theater cargo and troop movement. Even though the U.S. Air Force provided continuous intra-theater lift support, Reserve component C-23 Sherpas were activated to augment CH-47 Chinooks. Sherpas, however, are payload-challenged in terms of performance and internal dimensions. More utility and cargo capacity was required to support the long division maneuver from Kuwait to Baghdad. Heavy Divisions consisted of only 16 UH-60 Black Hawks for general support. With limited intra-theater lift and Corps assets already overloaded, there were minimal cargo assets to augment divisional supply requirements.

The future demands more standardized modular formations, standard operating procedures (SOPs) and joint training. Disparities in types, numbers, mission and SOPs for aircraft and their assigned units impede flexibility that is traditionally a hallmark capability of Army aviation. Standard basic building blocks are the first step in creating modularity. Second, these standard units must use similar SOPs. The whole concept is standardized and modular units that can "plug and play" with other units. Finally we must train more aviation at Combat Training Centers (CTC) to further strengthen our combat arms capability. Every OIF commander I have talked to has stated that the CTC prepared them for this war. The Army's CTC pro-

gram is vital to the future; however, we must strive to include more jointness in our training activities.

The Army must also improve on combat safety. For aviation, that includes improving the power margins required to fly at extreme altitudes similar to those in Afghanistan as well as avoid or operate in “brown-out” conditions that occur in desert environments like Kuwait and Iraq. There are materiel improvements that we intend to incorporate on our current aircraft such as “fly-by-wire” systems that provide hands-off recovery and/or landing in obscuration and low visibility conditions similar to those found in today’s commercial jets.

The distances covered in today’s warfight will only grow in the future. Our operations require satellite-based communications that can span the maneuver distances and varied terrain to effectively operate in a net-centric system-of-systems construct.

Of further concern is the synchronization and impact of bandwidth and frequency spectrum on what will eventually be a proliferation of Unmanned Aerial Vehicle Systems (UAVS) on the future battlefield. In Iraq, forces had a difficult time operating UAVS due to limitations in the bandwidth and limited frequency spectrum. The Army will take a holistic approach to the development and utilization of UAVS. Next month, the Army will deploy a UAVS Task Force to the USCENTCOM Theater to study methods and procedures for more effective integration of UAVS into Army and Joint operations.

With continuing lessons learned in our ongoing combat operations, let me stress that the Army still has the best aviation forces in the world thanks to this committee and the dedication and hard work of outstanding commanders and soldiers who are accomplishing the mission. But, we still owe them the very best equipment and training this nation can provide, now and into the future.

ARMY AVIATION AS A CAPABILITIES-BASED MANEUVER ARM OPTIMIZED FOR THE JOINT FIGHT AND LOGISTICS TAIL SHORTENED

The mission to transform Army aviation into a capabilities-based maneuver arm optimized for the joint fight with a shortened logistics tail requires a structure that is more modular and tailorable to support a range of missions and/or units. In addition to organizational and structure changes developed from lessons learned in current operations, Special Operations Aviation (SOA) capabilities were reviewed to determine what could be migrated into the conventional aviation force. Examples of previous SOA capabilities migrated into the regular force include night vision goggles, aviation life support equipment, and crashworthy fuel tanks. The Aviation Task Force also studied active and Reserve component responsiveness in order to optimize force readiness for deployability, limit Reserve activations and enhance unit and soldier stability. Finally, we looked at current and planned systems to determine their relevancy and synchronization in meeting Future Force requirements to include interoperability with the Future Combat Systems (FCS) and joint tactical warfighting.

Army aviation is a unique combat element with requirements that extend across all joint functional and operating concepts. We analyzed required capabilities from joint doctrine down to the company level. This enabled us to focus on the development of basic building blocks for units. These company building blocks permit the creation of a truly capable aviation Unit of Action (UA) with standardized formations. Based on current and projected aircraft inventories and with optimization of the force as a key parameter, we will restructure the current non-standard aviation brigades into 11 active and two Reserve component multi-functional Aviation UAs. These multi-functional aviation UAs will support four to five brigade combat teams. The aviation UA design incorporates the lessons learned from recent operations and corrects deficiencies in our current structure by moving aviation assets closer to the warfighter.

The aviation UA is able to organize by task, purpose, and mission. This provides several advantages over the current force structure. The new organization now includes robust reconnaissance, attack, air assault, utility, and cargo capabilities. It also includes organic aviation maintenance support in the aviation support battalion (located today at the division support command). Combat medical evacuation aircraft are directly organic to the aviation brigade commander to better support our forward forces. Further, it will be much easier to task-organize across divisions in order to meet the maneuver commander’s air requirements.

AH-64 Apache battalions in the new aviation structure are all 24-ship organizations. Black Hawks are increased from 16 to 30 aircraft to provide every division the capability to conduct, at a minimum, a battalion-sized air assault in one lift or sortie as well as increase overall aerial logistics capacity. Aerial cargo support was also moved closer to the warfight by shifting CH-47 Chinooks from corps to the divi-

sional aviation brigade. Additionally, a new fixed-wing Operational and Organizational (O&O) document is in the staffing process that proposes increasing tactical (TOE—Table of Organization and Equipment) aircraft, reducing administrative support (TDA—Table of Distribution and Allowances) aircraft and significantly increasing intra-theater lift potential.

The aviation UA will contain the Class IVa UAVS that will enhance manned-unmanned teaming and add more reconnaissance and surveillance capabilities to the maneuver UA. At least \$300 million will be added to our UAVS programs to accelerate this critical capability.

We learned from SOA about their utilization of robust liaison teams habitually attached to the Special Operations ground forces they work for. In turn, we developed a brigade aviation element (BAE) organic to every ground maneuver unit equipped with long-range joint communications packages to better synchronize and deconflict airspace for responsive planning and execution of combat operations. Additionally, starting this year the Army will field an interim standardized logistics automation system migrated from SOA to fill an automation void and improve aviation maintenance.

Logistics will be our “Achilles heel” in the future if we do not transform it correctly now. The Army requires future force systems that have predictive, embedded diagnostics and prognostics—similar to those in new cars that tell you when an oil change or maintenance is necessary. Common Transitional System—Aviation (CTS-A) with Aircraft Maintenance Aid Concept (AMAC) interface are aviation logistics automation systems that will serve as critical sustainability enablers for the future. Aviation maintenance must also transform to support standardized and modular concepts. Our logistics transformation initiatives include tooling Reserve component Aviation Classification Repair Activity Depots (AVCRAD) for full integration into the National Maintenance Program mission. The non-linear battlefield will require transitioning to two-level condition-based maintenance, meaning defective parts are replaced on the system when forward deployed and defective parts are repaired off the system in rear areas or in the U.S. Condition-based maintenance also means repairing equipment only when it breaks or is predicted to break. This concept reduces spare parts requirements, maintenance equipment, forward stationed maintainers and ultimately, the logistics footprint. We must also pursue spares commonality to further reduce logistics and supply distribution overhead. Procurement of sets, kits, and outfits (SKO), special tools, test equipment, and ground support equipment (GSE) will further enable our transition to two-level condition-based maintenance. However, modularity also implies that maintainers must also be proficient warriors. Every member of the Army team is a soldier first and must be proficient in combat skills regardless of unit type. The nature of warfare in the future demands this.

As I mentioned earlier, there is no substitute for demanding and realistic training. Leader development and individual/crew training is the foundation for everything we do. Our training strategy during this period of change is to fully implement Flight School XXI to produce more competent and trained flight crews. We will procure and field six additional Aviation Combined Arms Trainers (AVCATT) suites to conduct collective combined arms training, and we will leverage our simulations capability by upgrading or fielding additional AH-64 training devices. To complement our revised training strategies, we will apply over \$1.3 billion to our munitions accounts to resource our unguided training munitions (\$1.1 billion Hydra 2.75” Rockets) and to bridge the gap between the Hellfire missile family (\$180 million) and the forthcoming Joint Common Missile (JCM).

Recent lessons learned have informed us concerning our doctrine, tactics, techniques, and procedures. Our aerial gunnery (Field Manual 1-140) techniques and procedures are being updated to include the “running and diving fire” engagement technique. The United States Army Aviation Center and School is now qualifying all AH-64 pilots on night vision goggles and there is increased training emphasis on aircraft survivability equipment. As a result of preliminary findings from our Aircraft Shootdown Assessment Team (ASDAT), we have initiated maneuvering flight training. A comprehensive review of UAV doctrine is also underway at the United States Army aviation Center and School. Tactics, techniques, and procedures for aviation in Military Operations in Urban Terrain (MOUT) have been revised and continue to be refined. Lastly, we must revise our current Army aviation employment doctrine as we transition to multi-functional brigade (UA) and Army National Guard (ARNG) Aviation Expeditionary Regiment structures under the modularity concept.

ARMY AVIATION MODERNIZATION

On 23 February of this year, the Army leadership announced initial results of the Aviation Task Force. A significant recommendation was to reallocate RAH-66 Comanche funds to improve the overall capabilities and health of the aviation force. Terminating Comanche was neither an easy decision nor one made without considerable Task Force and leadership analysis. It was the right decision from both an operational and investment perspective that was made in the context of the changing operational environment, numerous studies in the last 25 years, and what we have learned from recent and ongoing operations.

Comanche is unquestionably one of the most sophisticated aviation platforms in the world today. The Comanche team of engineers, software developers, testers, and fabricators epitomize American ingenuity and represent the world's finest. We anticipate multiple opportunities to horizontally integrate leading Comanche technologies into current and planned programs. For example, we envision harvesting the Radar Electronics Unit, Integrated Communications, Navigation and Identification Avionics (ICNIA), radar warning receiver, and fly-by-wire technologies. The Comanche Image Intensification TV (I2TV) system is also under consideration.

The central issue to this difficult decision was that Comanche program growth accounted for 40 percent of the current aviation budget and up to 47 percent in the Extended Planning Period (EPP). By reallocating approximately \$14.6 billion (fiscal year 2004–2011) that would have bought the initial 121 Block I Comanches, the Army is able to restructure and enhance our \$100 billion investment in the total aviation force to meet current and future requirements.

There will be contract termination costs associated with this decision. Military and industry representatives are working diligently to determine the exact figure. Preliminary estimates are between \$480 million–\$680 million; however, the process will take some additional time since we must work with 400+ subcontractors that have contracts valued in excess of \$100,000. The Army will disseminate the termination costs when determined and finalized.

Termination of Comanche reflects the Army's recognition of new and changing global security challenges and national security requirements. The result of this reallocation will be a new buy of almost 900 aircraft over the Program Objective Memorandum (POM) to build modular tailorable forces and provide our Reserve component with more modern systems. The Army will accelerate modernization to include aircraft survivability equipment (ASE) for all airframes. This includes modernization of 1,400 aircraft to increase capabilities, survivability, and maintainability beyond 2020. The Army will buy 368 armed reconnaissance helicopters, initially upgrade 284 AH-64Ds to the Block III configuration with an ultimate objective of 501, and procure 303 light utility helicopters. This will enable us to completely divest 880 obsolete UH-1 Hueys and OH-58A/C Kiowa Warrior helicopters and to return UH-60 Black Hawk aircraft from our support and testing communities back to operational units. These FAA certified, commercial off-the-shelf (COTS), light utility aircraft will provide administrative support at our training bases and will also be assigned to Army National Guard units to conduct state missions, assist in counternarcotics operations, and to respond to homeland security requirements.

The identified intra-theater lift shortfalls will be addressed through the procurement of approximately 25 Cargo Fixed Wing aircraft, additional procurement of 20 CH-47 aircraft, and recapitalization acceleration for 19 CH-47D aircraft. The plan also provides for new procurement of at least 80 UH-60 L/M Black Hawk aircraft to increase lift capabilities for our Aviation and Maneuver UAs.

The net result of reallocating aviation resources includes procurement, recapitalization, and modernization of 70 percent of the rotary wing fleet plus enhanced ASE. In conjunction with our sister services we will begin development of joint vertical lift platforms that provide commonality and revolutionary capabilities in the future. In the meantime, Army aviation will take a huge step towards the future with balanced and integrated capabilities, modular and tailorable formations, and cohesive and highly lethal units that are deployable, versatile and able to operate in the joint warfight.

As the Army modernizes the fleet, priority of fielding new, recapitalized or remanufactured aircraft is based upon operational unit rotations and support to the global war on terrorism. Following current operations and the global war on terrorism, units with shortfalls are the next priority. The Army's policy is to provide deploying units in both the active and Reserve components with the newest and best available equipment. Overall, this reinvestment should provide no net loss of business and revenue in the rotorcraft industry.

AVIATION SURVIVABILITY EQUIPMENT (ASE)

ASE and aircrew protection is Secretary Brownlee's number one aviation priority. The Army equips the AH-64, UH-60, CH-47, OH-58D, and fixed-wing Special Electronic Mission Aircraft (SEMA) with A-kits to accept ASE consisting of detectors, Infrared Red (IR) and Radio Frequency (RF) jamming devices, and chaff and flare munitions to counter RF and IR threat systems. All active Army, National Guard, and Army Reserve deployed aircraft, are equipped with ASE. Additionally, protection against direct fire from small arms weapons is provided by armor panels, most frequently located in crew compartments and sensitive areas of the aircraft (such as the engine). On 9 January 2004, an Army G3 Policy Board approved the acquisition of Aircraft Ballistic Protection Sets (APBS) for deployed cargo and utility helicopters that will ensure an enhanced degree of protection throughout the cargo/passenger compartment.

Currently, the Army is modifying the OIF utility fixed-wing fleet to accept ASE while upgrading in theater and deploying CH-47s with the ALE-47 Flare/Chaff Dispenser to counter anticipated anti-aircraft threat missile systems. On 14 January 2004, the Chief of Staff approved an accelerated ASE acquisition plan that will initially focus on upgrading to the next generation Common Missile Warning System (CMWS) and Improved Countermeasure Munitions Dispenser (ICMD) for OIF/OEF deployed and deploying helicopters and fixed wing aircraft. This effort will commence by upgrading CH-47s, followed by selected fixed wing aircraft, UH-60s, and AH-64s. Over the POM period, the Army's modernized aviation fleet will be modified to accept an advanced countermeasure system consisting of CMWS/ICMD and a Multi-Band LASER Jammer. With respect to training, the Army formed an assessment team to review in-theater missile/helicopter incidents. The goal of this team is to develop lessons learned for incorporation into Standard Aviation Programs of Instructions and tactics, techniques, and procedures (TTPs) adhered to by Army aviation units.

AVIATION SCIENCE AND TECHNOLOGY (S&T)

The Army aviation science and technology (S&T) program fuels revolutionary aviation development, expands scientific knowledge in the area of manned and unmanned helicopters, and matures and demonstrates new technologies in support of the future force and Joint Vision 2020. Based on the Army Transformation Plan, this effort has been focused on investigating and developing technologies applicable to unmanned systems and to support selected opportunities for manned systems. The Army has a unique responsibility within DOD as the service lead for rotorcraft S&T investment. Under DOD Project Reliance, the Army has the responsibility to address the rotorcraft S&T requirements of all services and the Special Operations Command (SOCOM) in the areas that are not service or command unique.

The aviation S&T program invests in three areas: basic research, applied research, and advanced technology development. The Army invests in world-class expertise in academia, industry and other government agencies, as well as in state-of-the-art equipment in the area of basic research.

A highlight of basic research is investment in the Rotorcraft Centers of Excellence at Pennsylvania State University, Georgia Institute of Technology and the University of Maryland. Basic research is conducted by the Aviation and Missile Research, Development and Engineering Command (AMRDEC) Aeroflightdynamics Directorate (AFDD) located at the Ames Research Center, Moffett Field, CA and by the Army Research Laboratory (ARL) Vehicle Technology Directorate at the Glenn Research Center, Cleveland, OH and the Langley Research Center, Langley Air Force Base, VA.

The Army aviation applied research program provides the enabling technology and baseline for aviation development. This research includes enabling technologies for manned and unmanned rotorcraft in propulsion, rotors, drive train, and structures. A highlight of the program is the expansion of knowledge in air system autonomy and manned-unmanned teaming. The applied research program also invests in the National Rotorcraft Technology Center. The Center is a partnership of government, industry, and academia for developing air vehicle designs and other rotorcraft technologies. The program is executed at AFDD at the Ames Research Center, the Langley Research Center, and the ARL Vehicle Technology Directorate at the Glenn Research Center.

A key element of the aviation applied research program is the longstanding partnership the Army has established with the National Aeronautics and Space Administration (NASA). This partnership, first established in 1965, has resulted in an exemplary, highly integrated national technology program that is fully coordinated with industry and devoid of duplication of facilities and programs. All fielded United

States military rotorcraft, and derivations that have established our commercial base, can be traced back to this Army/NASA partnership. DOD/Army rotorcraft and the Vertical Takeoff and Landing (VTOL) UAVS technology development strategy depends on the continuing partnership with related NASA technology programs.

The VTOL UAVS potentially bring unprecedented agility, maneuverability, and lethality to the Future Force, while reducing signatures and logistics burdens. The transformational nature of the UAVS, both in capabilities and new paradigms, has energized the aviation field (in industry and academia) to truly "think outside the box." The benefit to the DOD and the Army will be revolutionary warfighting capabilities, as well as enhancements to the current force.

The aviation advanced technology development program is focused on UAVS, with an emphasis on demonstrations to provide the warfighter with the menu of technology for development and integration into the force. The demonstration programs will mature technology into realistic and robust prototypes. Technologies that enable autonomous flight, higher aerodynamic airframe loads, and increased maneuverability possible with UAVS will be demonstrated. A highlight of this effort is the Airborne Manned-Unmanned System Technology (AMUST) and the Hunter-Standoff Killer Team (HSKT) Advanced Concept Technology Demonstration (ACTD). These programs constitute the major effort to demonstrate manned-unmanned teaming. The program also invests in propulsion, drive train and structure technologies that enable UAVS application and have technology transfer opportunities to manned airframes. The advanced technology development program is managed by the AMRDEC Aviation Applied Technology Directorate (AATD) at Fort Eustis, VA.

Another notable highlight of the advanced technology development program is the Army-Defense Advanced Research Projects Agency (DARPA) partnering on UAVS platforms for lethality, surveillance and communications relay. The Army is pursuing increased lethality for the Future Force through the Unmanned Combat Armed Rotorcraft (UCAR) program (an armed VTOL UAVS) designed to team with manned or unmanned systems. Increased surveillance capability is being pursued through the A-160 Hummingbird Program, a medium altitude, long endurance VTOL sensor and communications platform, and the Organic Air Vehicle (OAV), a ducted fan VTOL UAVS that can be carried by the soldier and/or launched from a vehicle.

The investment by the Army in aviation S&T is guided by the requirements of the Future Force. Our investment in advanced technology development will grow in the coming years to meet the challenges of those requirements. The Army is confident that the aviation S&T investment represents a prudent program that meets the DOD and Army Transformation goals.

CONCLUSION

In closing, I have been very impressed and pleased with the performance of Army aviation in our recent and ongoing operations. But we can get better. We have to get better. Strengthening Army aviation and investing for a successful future reaffirms to our soldiers, our sister services, and the Nation, that only the best equipment and capabilities put into the hands of the finest soldiers in the world will be brought to bear in protecting our way of life, defeating terrorism, and the fight for freedom over tyranny.

Thank you for allowing me to share our work and participate in this session. We look forward to answering your questions.

Senator SESSIONS. All right. You say the procurement of 800 new aircraft for the fleet in general, plus the modernization of 1,400?

General CODY. That is correct, sir.

Senator SESSIONS. Then 1,000, you mentioned another 1,000 aircraft, or was that part of the 1,400?

General CODY. We are going to recapitalize more than 1,000 aircraft. We are going to modernize and put new systems and modernize about 1,400 airframes. The total buy, in 2004 through 2011, will be over 900 aircraft; I will show you that in the charts.

Senator SESSIONS. We will probably get into that in more detail in a minute and the merits of that. But let me ask you: How does this, General, overall vision affect your vision of Army aviation? With regard to utilizing Army aviation in the field, how will it change? How will it impact a commander's ability to utilize these forces, as compared to what they would with Comanche?

General CODY. With Comanche what we were buying was an aircraft that had low visibility in low observable technology. I do not want to get into the specifics of it because of the classification of this briefing, but it is not a stealth aircraft. I have been part of several different programs in my test pilot days that dealt with those type of capabilities. Comanche was going to bring to the table a much lower observable radar cross-section than the current helicopter fleet but it was not wholly immune to radars.

Comanche had the sensor systems and the reconnaissance, surveillance, and target acquisition systems teamed with Apache, teamed with our ground force, and teamed with our joint force, as well as the manned and unmanned teaming of UAVs to cover the reconnaissance, surveillance, and target acquisition requirements of the force.

With this change, what we are doing is we are going to take the Apache Longbow to full Block III. In the 2004 to 2011 time frame, 284 Apaches will go to Block III, and in the extended planning period, (fiscal year 2012–2020) 501. The only difference in capabilities between Comanche risk capabilities and Apache Longbow was the low, observable piece of the Apache compared to the airframe of the Comanche termination.

Senator SESSIONS. All right. So, you do not expect that to impact significantly—

General CODY. No, sir.

Senator SESSIONS.—a warfighter—

General CODY. Now we have run several runs—

Senator SESSIONS. I guess I should allow General Bergantz and General Sinclair to go forward. I am sorry I butted in there, but thank you for that.

General Bergantz.

STATEMENT OF MG JOSEPH L. BERGANTZ, USA, PROGRAM EXECUTIVE OFFICER FOR AVIATION

General BERGANTZ. Chairman Sessions, Senator Lieberman, it is a pleasure to be here to speak with you today.

From a programmatic and a material developer standpoint, many positive actions are being taken in the near term to improve Army aviation programs with the funding harvested from the Comanche termination. For quite some time, Army aviation frankly struggled with a funding bow wave that could not be satisfied within our available resources.

The Army is redirecting Comanche resources now to fully address and fully fund the acceleration of aircraft survivability equipment, procure light-armed reconnaissance helicopters, light utility helicopters, and some fixed-wing cargo aircraft. We are also going to enhance the current production and fielding of the Apache, the Black Hawk, and the Chinook. We will invest in aviation munitions programs and increase the resources for unmanned aerial vehicles, both existing and new ones.

The Comanche termination has caused some internal issues, all of which are being addressed. First and foremost, the Army wants to complete the termination of the Comanche contract and harvest any residual fiscal year 2004 funds that we can, to include de-obligating and redirecting the funds to other Army aviation efforts.

Second, reference assignment of personnel, the reassignment of government personnel is nearly complete while we have maintained a necessary small cadre of program personnel to complete the termination activities.

Third, a set of Comanche technologies exist that the Army would like to migrate to other platforms. These include the image intensification TV, the radar electronics unit, the fly-by-wire flight control system technology, the radar warning receiver, the T-802 engine, and the integrated communications navigation identification avionics (ICNIA) technology, along with its associated downsized antennas.

The intent is to carry these technologies through the end of fiscal year 2004 and then migrate them with their funding tails to the recipient platforms for fiscal years 2005 and beyond.

Program Executive Offices for Command, Control, Communications, Tactical (PEO C3T) and myself are currently doing a 30-day study on the ICNIA to see which piece parts we want to bring forward from that. We will conclude that in the short time. Then we will bring those results of that study forward to the G3 and G8 for resolution.

That concludes my remarks, and I look forward to your questions.

Senator SESSIONS. Thank you.

General Sinclair.

STATEMENT OF BG EDWARD J. SINCLAIR, USA, COMMANDING GENERAL, UNITED STATES ARMY AVIATION CENTER AND FORT RUCKER

General SINCLAIR. Chairman Sessions, Senator Lieberman, I sincerely appreciate the opportunity to appear and provide an update of the point of view of the commanding general at Fort Rucker and the United States Army aviation Center, representing the aviation soldiers worldwide.

As Lieutenant General Cody mentioned, we are at a dynamic time in our Army and the same remains, if not more so, for Army aviation. The aviation branch is determined and resolute in transforming to meet the future needs of our Army. Our mission is to ensure every single aviation soldier is trained and equipped to fight our Nation's war. As General Cody discussed equipping our force, I will provide some thoughts on training our force.

As you are well aware, Fort Rucker, Alabama, is the home of Army aviation. We execute all initial flight training for U.S. Army aviators. The through-put for our initial entry rotary wing pilots is 1,200 per year. In addition to initial entry rotary wing pilots, we also train about 3,500 graduate-level pilots from the Army, Marines, Air Force, several governmental agencies, and 39 allied countries.

In the past, we trained our aviation forces on tactics, techniques, and procedures that were developed for use on the planes of Europe. It was common for us to use the capabilities and standoff created through the superior technology of our aviation systems to engage a threat and win. Army aviation saw a drastic change, though, when we deployed into Afghanistan. We saw an enemy that used terrain and environment to their advantage.

The skill sets we taught our flight crews were no longer the skill sets that maximized our survivability. We realized that technology alone did not create or provide the edge we needed to ensure future successes. Furthermore, our operations in OIF, coupled with the lessons learned during OEF, provided us the definite data points to adjust our flight schools programs of instruction. Recently, a Fort Rucker-led team, known as ASDAT, which stands for Aircraft Shoot-Down Assessment Team, deployed to Iraq at the request of the combatant commanders to investigate the cause of recent Army aviation aircraft losses. This team's invaluable insights and lessons learned were briefed to the Army senior leadership, as well as the tactical commanders.

Our significant effort to capture lessons learned has already begun to generate the necessary changes our branch must undergo to remain relevant and lethal on the battlefield. I will highlight a few of these.

First, the base of maneuvers: our flight crews' training was restricted to certain limits pertaining to the aircraft maneuver. For instance, during a normal flight period, an aviation student could not exceed a 60-degree bank in the aircraft. While an instructor might demonstrate maneuvers greater than 60 degrees, the student was never allowed to execute them.

While this might be considered safe, we were not providing the appropriate or necessary skills to our aviators. During operations in both Iraq and Afghanistan, our crews often had to exceed these maneuver restrictions, but often much greater maneuvering limits had to be exceeded to avoid enemy fire.

Another lesson learned was running and diving fire. Lessons learned in both OEF and OIF demonstrated the need to execute running and diving fire in our reconnaissance and attacked aircraft. What that means is that crews are now being trained in a different set of skills than their predecessors. This change was driven because of extreme heat and high altitude operations that severely reduce the power margins of our helicopters and their ability to sustain a hover.

Our crews were driven to adapt to the conditions and use running fire techniques to decrease these power requirements. Further, the running fire proved much more survivable than exposing helicopters in sustaining hover mode in a desert environment. We are now training this at Fort Rucker to all aviators completing the attack helicopter reconnaissance aircraft transitions.

We also changed our night-vision goggle training for Apache pilots. Lessons learned resulted in adding night vision goggle (NVG) qualification training to all Apache AH-64 pilot training. Qualifying our attack pilots supplied with NVGs gives the crews the necessary redundancy to successfully complete their combat missions. Pilots graduate today using the best of both infrared and imaging supplying technology, reducing the level of risk associated with their combat missions.

Two more examples of this drive to improve our warfighting programs and instruction are the survival, evasion, resistance, and escape training known as SERE Level-C, and our dunker training. In December, we ran our first students through the aviator underwater egress trainer. This state-of-the-art facility was completed in

November and reflects a conscious decision to infuse survivability training into our helicopter aircrews. Prior to this development of this facility, the execution of this training for each operational aviation unit in the Army was required to send aviators to places like Jacksonville and Pensacola, Florida, to train under U.S. Navy supervision. As you might imagine, this requirement for egress training, while vital to survivability, was difficult for the field to acquire.

Fort Rucker now certifies every aviation student prior to graduation in this dunker. Likewise, the addition of SERE training arms our air crews with additional skills required to combat enemy forces in the event of capture. We have all seen the benefits of this SERE training, which CW3 Dave Williams, a prisoner of war (POW) during OIF, applied this training when he was captured by the Iraqis.

On a collective training side, Fort Rucker is transitioning to Flight School 21 model. We are instituting a push towards the increase in collective warfighting training scenarios. This change in training focus is enhanced by each student having more time in their go-to-war aircraft. Go-to-war aircraft are defined as advanced aircraft they will fly once they arrive in a unit, being a Chinook, Black Hawk, Kiowa Warrior, or Apache.

With this advancing training model, we are now having the luxury that each Flight School 21 will have the exposure to complex missions that he will face when he arrives at his first unit. We execute this collective training by sending students, aircraft, and instructors to operations with the infantry school at Fort Benning and at the Florida ranger camp.

We are conducting air assault operations and close combat attack operations with these students. Further, we are incorporating the air traffic services students into these scenarios, so they can have the opportunity to provide air traffic services that they would normally apply in a tactical field environment.

In the future, we will incorporate unmanned aerial vehicles into a manned/unmanned teaming and integrate them into these scenarios. The infusion of these different assets in training venues, in a realistic tactical scenario, enhances our soldier's skills and prepares him for combat.

We also make great use of our state-of-the-art simulation facilities as we replicate combat operations in a collective and joint environment at a reduced cost. We continue to be the training center for each deploying aviation unit for the requirement for sustained combat operations, as units deploy to Kosovo, Bosnia, Afghanistan, and Iraq.

As you can see, we are moving out to ensure that the Aviation Warfighting Center at Fort Rucker is contributing to the evolving missions and the joint fight as we transform Army aviation.

On behalf of everyone of the 58,000 Army aviation soldiers, I would just like to thank you for your support and what you have done for us each and every day. Thank you.

Senator SESSIONS. Thank you, General Sinclair.

I see the chart has appeared. Anybody want to explain that one?

General CODY. Yes, sir, with your permission.

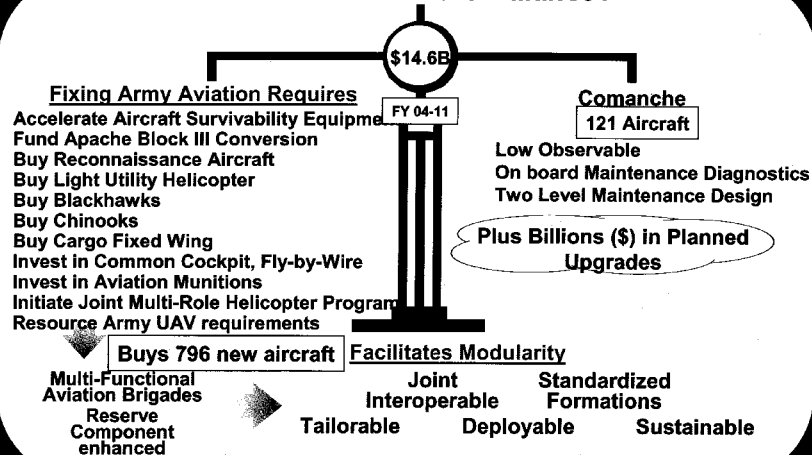
Senator SESSIONS. Proceed, General Cody.

[The information referred to follows:]

SASC AIRLAND SUBCOMMITTEE 30 MAR 04

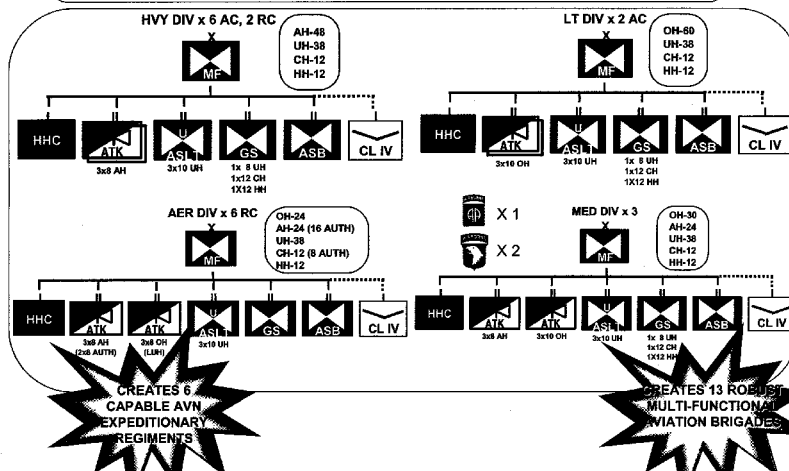
Fixing Army Aviation

-- What was in the Balance?--



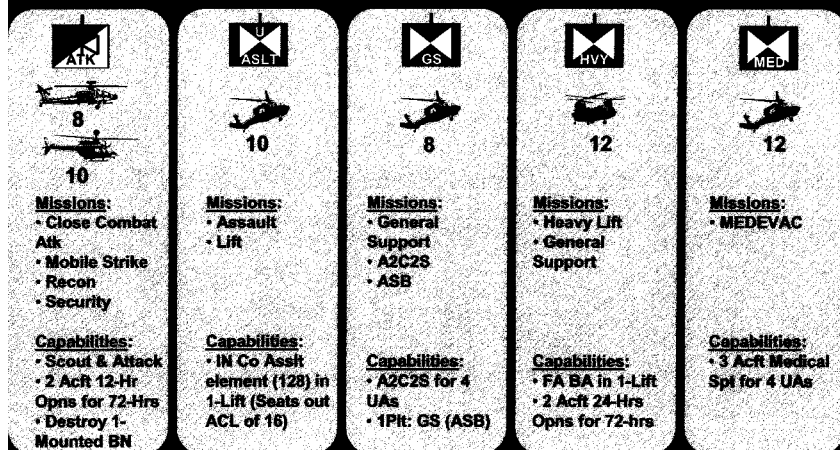
Aviation Units of Action

- Multi-functional Aviation Brigades optimized to support up to five BCT's
- No organic aviation at the BCT
- Standardized Heavy, Light and Medium structure

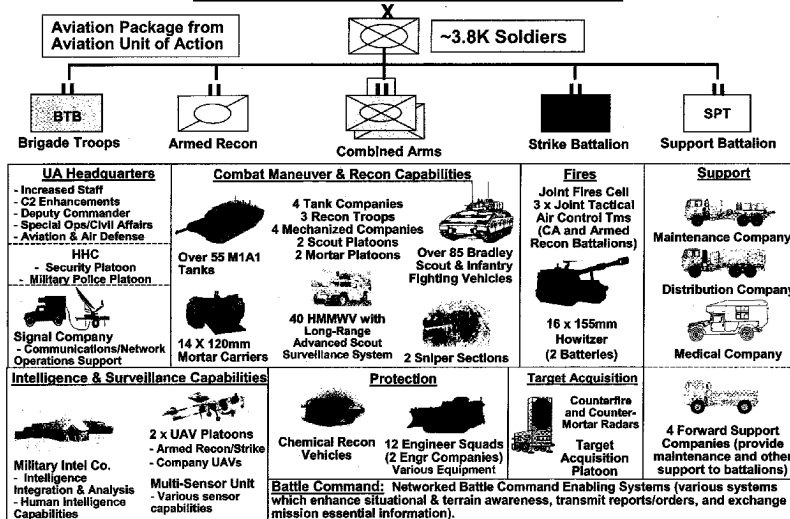


Company Building Blocks

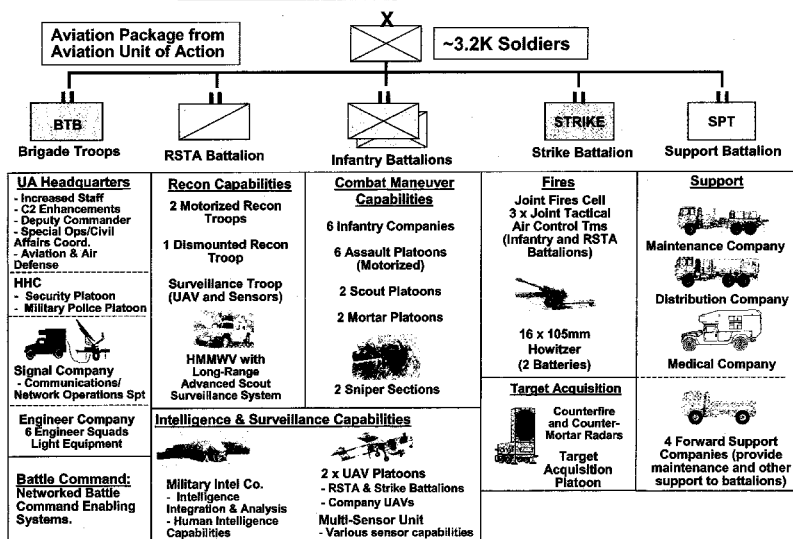
- Capable & Lethal** – More combat power in support of the soldier
- Modular** – Standard Company size capabilities
- Tailorable** – Flexible for Task Organization
- Sustainable** – Provide Modular Maintenance Packages



Heavy Unit of Action Design



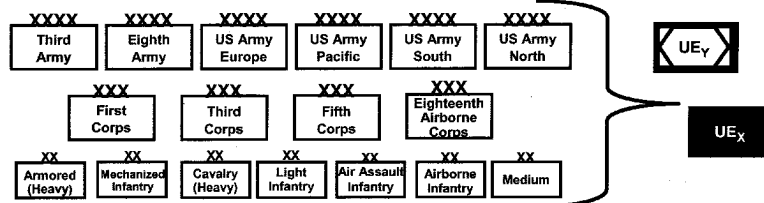
Infantry Unit of Action Design



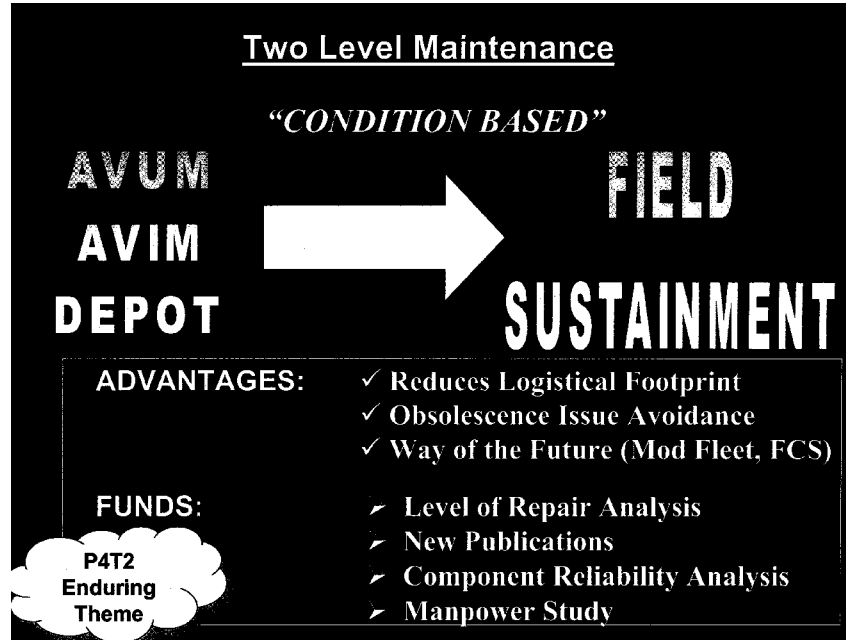
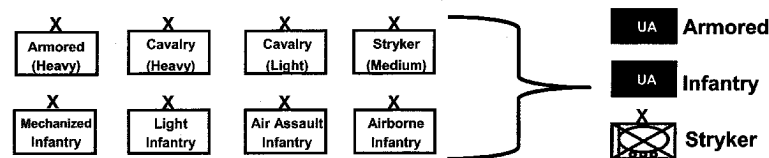
Standardizing the Force






Previously Units Were Designed to Provide a Specific Capability, Sometimes Linked to a Specific Region. Newer Units Will Be More Standardized With Embedded Broad-Spectrum Capabilities.


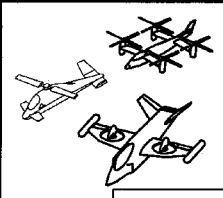
- ✓ **Seven Division, Four Corps and Six Army Structures to Two More Capable Unit of Employment Designs (Achieve Headquarters Delaying):**

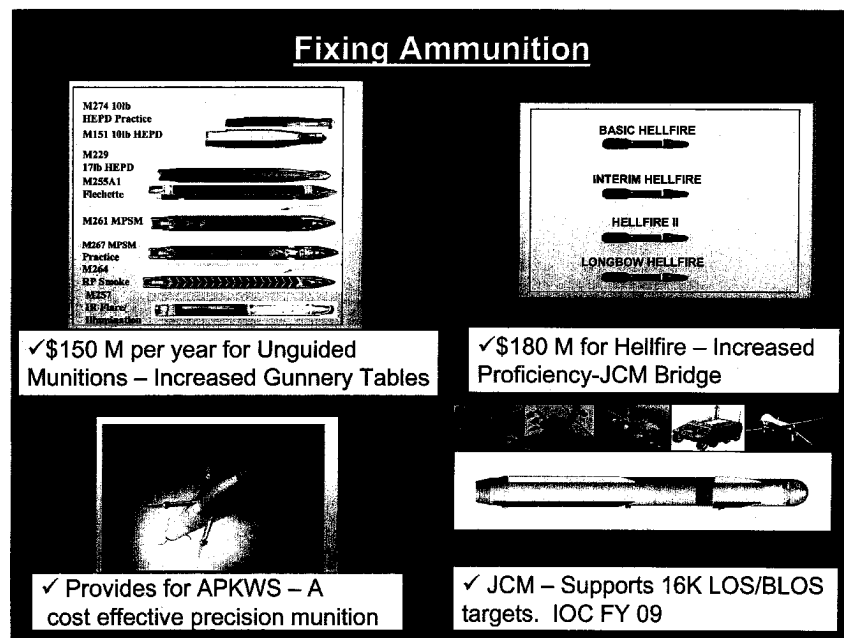
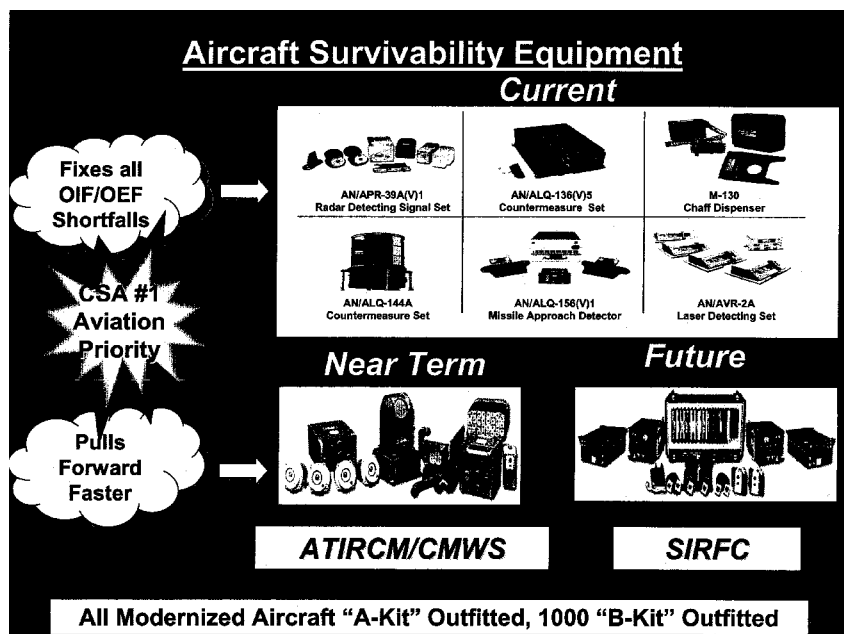


- ✓ **Eight Brigade/Regiment Structures to Three Unit of Action Designs:**



<u>Funded Aircraft Initiatives Through FY 11</u>				
		<u>ACTION</u>		<u>RESULT</u>
	AH-64	<u>284</u> Block III Upgrades	M O D E R N I Z E D F L E E T	FCS Capable, World Class Attack Fleet
	CH-47	<u>24</u> New and <u>19</u> Recap Acceleration		Better postured Medium Lift Fleet
	UH-60	<u>90</u> + UH-60 (51L/39M) with 9 Med		AC/RC Utility Fleet Matched with Proper Mix
	Armed Recon	<u>368</u> New Aircraft, to be rapidly acquired		Divest OH-58, Properly Support Recon Mission
	LUH	<u>322</u> New LUH Aircraft with Simulation		Divest UH-1, Better Postured for RAID, HLD
903 NEW AIRCRAFT				

Funded Aircraft Initiatives Through FY 11	
	Cargo FW
	Joint Multi-Role Aircraft
<ul style="list-style-type: none"> ➤ Funds 25 C-XX Cargo Fixed Wing Aircraft ➤ Includes Compatible Simulation ➤ Will transition current outdated force to support Future Force 	
<ul style="list-style-type: none"> ➤ Investment in the future to Bridge Heavy Lift Gap (aging C-130) ➤ Joint system development ➤ Conceptually system provides direct delivery, reducing transshipments 	



General CODY. What I would like to do is go through a couple of charts that, based upon your questions, Mr. Chairman, and Senator Lieberman's, I think that will get to the heart of the issue.

This is a chart which I briefed the President on when we went and took the decision to him to tell him what was going on. Basically, when we started the task force, we did not tell the task force to go look at trades. We told the task force to take a holistic look at Army aviation through a functional area analysis, and come back and tell us what needs to be fixed.

We did not have anybody sitting off to the side, saying, "well, if you do this, we can trade this." We did not give them that. So, they came back and they said, "these are things we need to fix in Army aviation." When they gave that to us, then I put a small team together to take a look at our investment accounts, the training, technology, doctrine, leader development, organization, materiel, and everything else.

What we came up with, at the end of the day, is the balance in 2004 and 2011, which is \$14.6 billion, 121 Comanches, versus this \$12.9 billion at the time, it is now a little higher, to fix Army aviation. What they told us was, and they knew this, that the IR threat from now until we can see out to about 2015, is the most significant threat that we cannot deal with unless we fix aircraft survivability equipment on our aircraft. There was nothing new from what we found out from Task Force Hawk, except that the proliferation of these missile systems are out there. None of our aircraft that were shot down were shot down by missile systems that we knew were out there but not to that level.

Senator LIEBERMAN. Excuse me, General. IR is infrared?

General CODY. Infrared, yes, sir.

Senator LIEBERMAN. As in heat-seeking?

General CODY. That is correct.

Senator LIEBERMAN. That is what we are facing in Iraq?

General CODY. That is correct, sir. It is the same as what we are facing in Afghanistan and in Kosovo, as well as the radar systems in Kosovo, the Serbian radar systems.

The next thing they came back to us and said, "we have several helicopters in our fleet that, over time, we have not brought to their full potential, one of them being the Apache Longbow." The Longbow Block III was not funded. When you take a look at all the things that Block III Longbow can carry, they came back to us and said, "it does not make any sense not to bring Longbow up to its full potential for the future battlefield to fight in a joint air/ground team environment that we know we are going to have to fight" not so much the Afghanistan fight or the Iraqi fight, but for the future battlefield.

They also said, "we need to take a look at our reconnaissance helicopter manned and unmanned mix, UAVs. We need to resource them and put them into the organization of aviation." The aviation branch at Fort Rucker is the component now for UAV training and operations maintenance and all that.

We had, on the books for years, a light utility helicopter that we never resourced. They recommended to us that, as we take a look at the homeland security mission set for the National Guard, and when we take a look at how we are moving to a more modular Army coming out of armies, corps, divisions, and brigades, and going to Units of Employment Y (UEy), Units of Employment X

(UEX), and brigades, there is still a requirement out there for a light utility helicopter; so, they recommended that.

We are retiring the Vietnam-era UH-1s and Cobras and the OH-58 As and Cs. We have no replacement aircraft to be able to cascade to the National Guard. They recommended that we go out and buy—as Senator Lieberman said, we have been living off of what Congress has been giving us every year. They said if we are going to fix Army aviation and continue to employ the National Guard formations the way we are, we have to get more Black Hawk helicopters in the fleet. So they recommended, as well as fully funding the M-model, which is the newest Black Hawk helicopter, fully funding that program.

Chinooks; we do not have enough Chinooks. We do not—in fact, we are working now to work through the CH-47 F-model and the MH-47 G-model. But with the number of Chinooks we have right now, to be able to give the National Guard the requisite number they need, again their homeland security missions, homeland defense, as well as for the warfight, we were short some 56 Chinooks that we needed for our programs.

We have a niche gap in intra-theater combat service support. Right now we have some 40 Sherpas. We have 16 of those Sherpas, C-23s, out there. They are a good aircraft but they do not meet the requirements right now that we have. They certainly will not meet the requirements for a more modular joint expeditionary Army that we are going to put in the battle space. They recommended that we go back and review the cargo fixed-wing fleet and what capabilities we need to have, and they made some recommendations to us.

They talked about common cockpits and fly-by-wire. Common cockpit, and this is what we took from the special operations community, where their Black Hawks and their Chinooks have the common displays and common software. We, for some reason, were not going down that road. We were going to build the M-model. We were going to build the Foxtrot model Chinook, two utility cargo helicopters without the same cockpit. They recommend we not do that and we fully fund a common cockpit program, not only for training but also for logistics in the out-years, as well as for integrating the air/ground team as we continue to invest in the C⁴ISR.

Fly-by-wire: we have suffered several aircraft losses to the brown-out conditions in Afghanistan and in Iraq. We will not get to the level of control to assist the pilot to be able to safely land those aircraft in those type of conditions until we go to a fly-by-wire system.

Senator SESSIONS. Can you explain that or is that—

General CODY. I will let my air support—I will get it about 50 percent right.

General BERGANTZ. Just briefly, sir, the fly-by-wire system takes a lot of the older mechanical drive systems out that were bell cranks, and cables, and that sort of thing that controlled the rotor system and replaces it with wires, basically. It is a fly-by-wire. So, you are sending electronic signals over the wire to an actuator out there that makes the blades go up and down and do those sorts of things.

You make it triply redundant by putting in basically three sets of wires there. So you have the redundancy and there is no single

point failure. But when you do that, it makes it a much more reliable system. It gets rid of a lot of weight, which increases your performance. It makes life easier on the maintainer, because it gets rid of a lot of parts in there, the bell cranks, the cables, and so forth that he used to have to worry about replacing and so forth.

General CODY. We think this is going to be—we will lead off, of course, with the UH-60 M-model, but then we will be looking at cascading this technology into other aircraft. Comanche had fly-by-wire. In fact, I am one of the few pilots that have flown Comanche.

General BERGANTZ. Right. Comanche, in fact, is the first rotor craft that had fly-by-wire.

General CODY. It is absolutely the best flying helicopter the industry ever built for us. I'm surprised when the cancellation came out that they didn't have several quotes from General Cody saying it's the best aircraft they ever built, because I go on record as saying that it is.

Senator LIEBERMAN. There is still time. [Laughter]

General CODY. I believe I just did.

Senator LIEBERMAN. Thank you. We have that on the record.

General CODY. But the capability of putting fly-by-wire in is really going to save us helicopters and for the investment. So, they came back—

Senator SESSIONS. That will be a Comanche technology that you will be able to—

General BERGANTZ. Yes, sir. That is one of the ones I mentioned that we will carry forward.

General CODY. That is one of the ones we will carry forward. We also have some shortages in our rocket strategy, in our acquisition of rockets. We have used up quite a few rockets in this fight, as well as in the Afghan fight. We had some gaps until we bring on the new rockets, as well as gaps in our Hellfire line, as we go forward to the joint common missile. We have fixed our Army aviation munitions.

The UAV requirement: the study said we need to have UAVs in the aviation brigade formations. We also need to take a look at the manned and unmanned teaming of UAVs, level three and level four. Level three, you will hear people talk about. That means if you are flying a helicopter, you can throw a switch, and you can drive the package of the UAV that is flying out ahead of you 50 miles or 100 miles. So, you now control the sensor system.

Level four means you not only control the sensor system, but you also control the helicopter. We will be able to put level three and level four on the Apache Longbow Block III. We will be able to put at least level three on our Army aviation command and control system (A2C2S) Black Hawks and level three on our light-armed reconnaissance helicopter.

All of this on this side of the fence, on this side was 121 Block I Comanches. As we did our analysis that General Sinclair talked to you about what was shooting down our helicopters, if the Comanche was flying today in Iraq, those same missiles that took down those nine aircraft would take down the Comanche, because Comanche does not have an active IR system for IR missiles. Once you start putting IR active systems on an aircraft that was built for a radar cross-section, you start getting into those quick trade-

offs of what your radar cross-sections look like. I cannot go much farther than that in this type of setting.

That was one of our problems. So, we are faced with buying 121 Comanches knowing that we were going to have to upgrade it to the IR threat that we know that was out there. We would still have this problem in 2011, because we did not have any money in the Army to be able to take care of all of this.

That is where we came up with the decision. I do not think it was a business decision, because—in some cases it was but in other cases, I am not sure—in fact, I know after I have looked at this for a long time, knowing what I know now, knowing what I know going into the future, I am not sure that I would pursue buying Comanche the way it was structured because it provides a niche capability.

Fifteen years ago, we sent Apaches after radar sites to start off the first Gulf war. Today, I do not think we would send a Comanche against those radar sites because we have other joint systems that can deal with that type of threat that we did not have back in 1990/1991.

As great an aircraft as Comanche was, it was starting to get squeezed into a niche capability that we kept holding on to for low observable, never achieving stealth, at quite a cost. It was going to really affect our ability to have Army aviation as a joint and air/ground team member on the next battlefield. So, that is why we made the decision.

What I want to do real quickly, because it goes to the other point, I want to show you how we looked to build a capabilities base once we went to this. We looked across all our aircraft fleet and we said, Okay, we have to redesign the air/ground.

So, what we basically did was we said in the attack role, the basic mission unit, we wanted to have a troop or a company of either 8 Apaches or 10 light-armed reconnaissance aircraft as a building block. For the assault mission, we said 10 Black Hawks; for the general support mission, 8 Black Hawks; for the heavy assault and cargo, 12 Chinooks; and for 12 medical evacuations (MEDEVACs).

We looked across, and we wanted to say we need to have modular, tailorable and more sustainable formations so we could push them down. Once we did that, we looked at where all our helicopters were. We had them in formations above division and above corps. So, we said we are going to take all those helicopters out of corps and take all the helicopters above corps, and we are going to make our formations more robust at the division level so they can fight with the ground teams.

So what we did, we took the 11 different aviation brigades in the Army, and we said this will fix the National Guard. We have two National Guard divisions that are part of the warfight. They will be heavy divisions, as we design them. We also have six active duty divisions that, when we redesign them, will be heavy divisions.

So, we designed an aviation brigade that gives them two attack helicopter battalions of 48 Apaches, a Black Hawk battalion of 30 Black Hawks, a general support battalion that gives them 8 command-and-control UH-60 helicopters, and 12 CH-47 Chinooks and 12 MEDEVACs. We put the MEDEVACs into the aviation brigade.

We also gave the aviation brigade its own sustainment. In other words, the intermediate two-level maintenance for aviation and maintenance we put in there. We created space for the Class IV UAV. So, this is what the aviation brigade will look like.

In comparison, when the 3rd Infantry Division crossed the berm last year, their aviation brigade had 18 Apaches, 16 Black Hawks, and 24 Kiowa Warriors. This is a much more robust formation. We will build 11 of these formations.

For the National Guard divisions, the other six divisions themselves, we created expeditionary regiments. They will have the same building block as what we built for the baseline. Because we are short of aircraft, they will have the same building blocks, but will be short a company across the board, except in the UH-60. We have optimized them for homeland security, homeland defense, stability support operations (SASO), Balkans, and Afghanistan. If we put them in the heavy warfight, we will backfill them with modules from the active component (AC).

They are structured here at the support, and they are structured at the brigade. They are all the same. So, this is a much more tailorable and adaptable formation to be able to do that.

So, we are breaking the paradigm here of reinforcing active duty activation with National Guard. Aviation in this case, for these types of units, we will actually chop AC units to them.

When we look at our light division, 25th Infantry Division and the 10th Mountain Division, we used the same design except we're resourcing them with light attack aircraft versus the Apache, but they have the same formation.

For the 101st and the 82nd, our two vertical envelopment divisions, as we transform those two divisions here in the next 3 years, we are retaining the air assault division with four maneuver brigades. We will retain the 82nd Airborne as an airborne division with four maneuver brigades.

The delivery of these assets, primary delivery of the combat formations for the 101st will be by helicopter. That is why they will get two of these brigades. The 82nd will be primarily delivered by parachute or by some other means. We gave them the same tactical mobility by giving them a full-up aviation brigade, which is much larger than the brigade they have right now.

But the beauty of all this is, for the 18th Airborne in particular, they can cut these brigades to any of the divisions when they employ them. If the 82nd went to combat next week, they could take two of these brigades with them because they are all the same formation.

So, that is where we moved to. We think we have this thing about right.

Senator SESSIONS. You can draw on the National Guard?

General CODY. The National Guard has signed up for this; yes, sir.

Senator SESSIONS. But you would be able to draw on them parts or whole as you chose?

General CODY. Yes, sir. I will use the 10th Mountain as an example right now. They are Apaches in Afghanistan rather than two battalions of light attack aircraft. We can take one Apache battal-

ion to try and give it to them, and it would not change this formation. We have the right support mechanisms.

Senator SESSIONS. All right.

General CODY. So, let me recap for you. Then I will get off the stage here, and I will answer your questions.

What does this all mean on how we redid this? About 903 new aircraft for the AH-64 will take Block I aircraft, 284 will go to Block III in this cycle 2004 to 2011. We will take another 217 after 2011 to build it up to 501 for the objective.

The CH-47, we are going to buy 24 new ones, recap 19, and accelerate to the F-Model and G-Model lines starting in 2005. The UH-60s, we are going to buy 90 new ones in 2004 through 2011; 51 L-Models and 39 M-models, as well as 9 MEDEVACs.

Regarding the armed reconnaissance helicopter, we have a requirement that is coming into the building from the Training and Doctrine Command (TRADOC). We think it is about 368 aircraft we need between now and 2011, and then sometime in the next 2 or 3 years, we will reevaluate that number. We know between now and 2011, with the formations we have, this will fill up those brigades with the light-armed reconnaissance helicopter, and then we will be able to divest ourselves of the OH-58 Kiowa Warrior.

On the light utility helicopter, we need 322 new aircraft. What that allows us to do is to backfill the UH-1s that are being divested, but also, more importantly, there is about 144 what we call TDA, Training Distribution and Allowance Aircraft which support our garrison and training units not combat aircraft, in places like our combat training centers and our test centers, MEDEVAC for CONUS that they will be able to displace Black Hawks so we can put them in the Guard formation. Then the rest of those aircraft will go into the Guard OH-58 battalions for their homeland security to replace the Reconnaissance and Interdiction Detachment (RAID) aircraft.

So, that is what this does. What is not on here is \$390 million we have in the program for procurement of UAVs. We have a team going down range to Iraq in April. Some will come from General Sinclair's aviation center and the others from TRADOC, the future center. I am sending my requirements people, and General Bergantz is sending his. It will be a team to go down range for about 4 weeks and take a look at the IGNAT UAV Predator-type class UAV we have in the country now that are flying.

It will look at the Hunter UAV. It will look at the Shadow 200 UAV and the Raven UAVs, those four types of UAVs, and then will come back and generate the requirements of what type of UAVs we want to put in these formations.

Senator SESSIONS. All right. Thank you, General Cody. That was a good presentation. It will give us some feel for how we are going to be configured and how we will go to war with aviation.

General Bergantz, I know you and—I assume the senator will be back. Maybe we can talk some more about that Comanche later. But I do recall being at Fort Rucker last year. It was the 4th of July, maybe. The wife of a senior helicopter trainer said, "Well, I'll tell you what I think." Comanche had been mentioned. She continued, "No, I'll tell you what my husband thinks." I said, "What is

that?” She said, “He thinks you could upgrade the Apache Longbow, and you don’t need the Comanche.”

That had not been our position, the official position, of the Army. I guess we have invested a lot in it. It is always better to bite the bullet sooner rather than later, but we cannot say this is real soon that we are biting the bullet.

What can you say in defense of the criticism that can rightly be raised, that if this is so, why did we not know it sooner?

General CODY. I will take it first, while these guys try to figure out how to back me up. First off, let us remember that Comanche, when the acquisition decision memorandum was signed for 650 Block I Comanches, it was to replace the aging Kiowa Warrior fleet, because we had a helicopter in the Kiowa Warrior that was really a gap measure until we could get Comanche on board. What Comanche brought to the table was its electro-optic sensor system (EOSS), its sensor suite, its communications package, the Longbow radar system that picked up targets, as well as being an extremely agile and fast aircraft.

So, that is what it was going to do in Block I. It was to replace the Kiowa Warrior for the reconnaissance, surveillance, and target acquisition. Then in the Block II and Block III upgrades of it, they were looking at a newer engine and a newer transmission so that the Comanche could carry more armament and be almost as lethal in terms of carrying combat loads as the Apache in the out-years.

That is what, as we looked at the trades, we kept coming back to as part of the problem: we never brought the Longbow to its full potential. The Longbow carries almost—well, it carries 16 Hellfires on any given day. That is an airframe that does not really care that much, because it is a pretty stout aircraft.

We also looked at if we are going to keep Longbow out for that many years, what is our recap strategy going to be. So, we went through all those space trades, and that is how we came to the conclusion that with a light-armed reconnaissance aircraft, that was more deployable we would fill one of the required voids. I forgot to add this. That was one of the other things that came out of Task Force Hawk, as well as getting into Afghanistan, as well as some of the other contingencies that have popped up that were on our radar screen, was how do we get a light-armed reconnaissance aircraft into the fight as fast as our new, more deployable, more responsive ground forces?

Comanche is larger than the Cobra and a little smaller than an Apache. We started taking a look at all those type of trades. We felt we could fill the gap of retiring the Kiowa Warrior by bringing on a more air transportable, smaller, certainly less expensive, easier to keep close to the ground troops light-armed reconnaissance helicopter. With UAVs and a fully potential Block III Longbow Apache, we saw no degradation.

Now, we have had the mobile battle labs run several iterations now of future battles, where we used to run it with Comanche and the FCS force. Now we have run them with Apache Longbow and a surrogate, less capable aircraft. With UAVs and joint fires and Longbow AH-64D Block III, we are seeing no degradation right now to the fighting capability on the high end of the FCS-equipped force.

Senator SESSIONS. You refer on your chart to the light-armored reconnaissance aircraft. How does the viability of that aircraft play into the picture and your decisionmaking process?

General CODY. I will kick that one down to General Sinclair. He was on the task force, and he could talk a little bit about it.

General SINCLAIR. Sir, the light-armored reconnaissance aircraft will prove to have reconnaissance capability for—especially in the light infantry divisions to go out and find the enemy. Then it still has the capability and has the weapons capability to go ahead and destroy a smaller force. It is not going to be the true punch force that you look for from Apaches. But it will have the survivability, the ability to conduct reconnaissance, the sensors on it that can detect forces, be able to designate targets for artillery and for Apaches and, probably more importantly, for the joint fighters.

Senator SESSIONS. How has it been performing? How many more? Are these the new 322s you are projecting to buy?

General SINCLAIR. 368, sir.

Senator SESSIONS. 368?

General SINCLAIR. Yes.

Senator SESSIONS. 368. How has it been performing?

General SINCLAIR. Sir, right now we do not have an aircraft identified. We are looking right now, looking at—

Senator SESSIONS. This is new, not in the inventory?

General SINCLAIR. Correct, sir. We are looking at different options for it.

Senator SESSIONS. How long are we looking at?

General BERGANTZ. We anticipate that the proposals will start to come in. We will go ahead, now that General Sinclair has completed the interim concept development (ICD) work and is in the building being approved, then we will be able to go out with a request for proposal (RFP) and compete this. Then what we will do is come back in and figure out which is the best platform that meets the requirements that were laid out in each document.

As we narrow down and winnow down the contenders through the source selection process, it may be that there are only a couple out there that can actually do what we want the set of requirements to be, the capabilities that we want. If that is the case, it may make it simpler than if there are five or six of them.

General SINCLAIR. Our plan is that the first unit—

Senator SESSIONS. This has to be rapidly acquired. I guess my question is: How rapidly is rapidly?

General SINCLAIR. We plan to have these—

General CODY. The first unit equipped is fiscal year 2007, sir.

General BERGANTZ. Right, and to have the majority of them all bought by the end of the POM period.

Senator SESSIONS. All right. On the conversion of 501 Apaches to Block III configurations leaves 203 A model Apaches in the fleet for National Guard. So, how is that going to work out for us?

General CODY. Sir, based on the 2006 to 2011 program we have put about \$175 million in the Apache line for either upgrade or transition to D models for those A model aircraft we have in fiscal year 2008. Right now, industry is looking at rotor blades, rotor systems, newer engines, the 701-D engine, as well as new transmissions. We have money to do a focus recap of the A models, so

we keep the National Guard Apaches in much better condition—we are not going to go back and do like we did to the National Guard the first time, where we gave them the Cobras and did not put any money in them.

We have \$1.9 billion in a focus recap of the Apache A model line, as well as \$175 million starting in 2008 for upgrades and/or a transition to the D or to whatever upgrades industry comes back and tells us is possible.

Senator SESSIONS. Will this have the kind of modularity capability that you are looking for?

General CODY. It is not the optimum. I mean, quite frankly, we would like to have all the Apache D models be Block III. But we think it is more than prudent, right now, to get ourselves through this bow wave in terms of training and in terms of what can get off the production line during this time frame, and this is reflected in our amended budget.

But the most important thing is we have put money into making sure that these A models stay fully up with the changes we will make in any type of drive train on the Longbow.

Senator SESSIONS. Senator Lieberman.

Senator LIEBERMAN. Thanks, Mr. Chairman. Thanks to you, General Cody, and your colleagues.

Look, I appreciate the kind words you had for the Comanche. You are in a position to know, having flown it. This gets to my concern that the decision to terminate ultimately was a budgetary decision. It is not that there is anything scandalous about that. It is just that it makes me worry about what we have sacrificed. It is not scandalous in the sense that there are budget limits. But as I look at this chart, fixing Army aviation, what is in the balance? A lot of the programs on the side that now will be funded, as a result of the termination of Comanche, look a lot like programs that we have heard described here as Army needs over the last decade or so.

So in some sense maybe this means that the Army has been pushed to finally make a really tough decision because of the resource shortfall that is not your fault but it is what successive administrations and Congresses have given you. My concern is that we have sacrificed. In some ways we are modernizing, but we are not transforming. I know that the orientation of the Army, the desire of the Army, is to transform. So we are now proposing, you are now proposing, the termination of a truly transformational helicopter and using the money to modernize and fix some problems with Army aviation but perhaps, again, at the risk of having us unprepared for the future threat environments.

So, let me begin with that general question. The bottom line is: Is this not ultimately a budgetary decision that you were forced to make?

General CODY. Let me take that on, Senator Lieberman. First, we looked very hard at this. One could make the case that this is a Fram oil filter, on the left-hand side of that chart, that came due.

Senator LIEBERMAN. That this is a—

General CODY. Fram oil filter that came due.

Senator LIEBERMAN. Fram.

General CODY. I testified in 1999 that it was out there from Task Force Hawk. Due to shortages of modernization dollars of about \$5 billion each year in the accounts, it still lingered out there. It became more of a problem for us with the amount of aviation we had in OIF and OEF—over 800 aircraft flying three times the operation tempo. We have lost 45 already, and there is another 24 that we think we will lose once the estimates come back. This certainly weighed in the balance of making the decision.

Transformation is about battle command, about seeing first, understanding first, and being able to act first. When we looked at Comanche and did the trades, we said, okay—what are the capabilities we need for the transformational force? Do we have other ways to mitigate? Such as taking this helicopter that has low observable technology, certainly great technology in terms of sensor to shooter linkages, in terms of equipment packages on board?

What we asked ourselves is, can we bring Longbow, can we bring a light-armed helicopter, and can we bring the linkages to the air/ground team of the FCS-equipped force? Can we get the sensor packages? Can we mitigate with the new technologies that we are now seeing on the battlefield? You were not here when I discussed the fact that we are studying, right now, the four types of UAVs we have employed in Iraq. We are sending a team in there.

When we looked at it across the board, we said the transformation piece of this is not so much the platform, it is more about seeing first, understanding first, and being able to act first. We came to the conclusion that we had some transformational technologies and some transformational changes in the way we set up our battle command systems to deal with these platforms and employ these platforms and that we would be okay.

I believe that Comanche provided us a niche capability in 2011 because of its low observable technology. I also believe that we will probably lose a lot of that advantage if we would try to optimize it for an active infrared (IR) threat that is getting bigger, which means we would only fly it at night. Because if the testing said if we put this active jamming system on this fuselage that was designed, and all of a sudden your radar cross-section balloons on you, we would probably have made the decision on that \$50 million helicopter not to put the active jammers on, which would have driven us to not risking that aircraft in the daytime. Now, we really have a niche capability because we cannot fly the air/ground team 24 hours a day.

So, all these things came into play. I think we have it right. However, at the end of the day, today we had a problem, about \$12.6 billion and it was going to be a problem in 2011 no matter what. That is how we came to the conclusions.

Senator LIEBERMAN. Let me focus on one part of that answer. It is the idea, the estimate, that the threat from infrared is rising more than from radar-guided missiles. I understand we faced that in Iraq and in Afghanistan. But we also, as I indicated earlier, faced the radio controlled and radar threat in Kosovo. My presumption was that in the more sophisticated conflict environments of the future, we would be more likely to face a threat from radar, as opposed to infrared or heat-seeking.

So, I know I heard you set a date that the task force estimated that the greater threat would be from the infrared, sometime—what? 2015, did you say?

General CODY. About 2015, look at the threat out there, because we are dealing with the suite of integrated radar frequency—we are bringing suite of integrated radio frequency countermeasures (SIRFC) on to deal with radar for our Special Operations Forces (SOF), as well as for the Apache and for the Black Hawk. So, we are concerned about the radar threat, and we are dealing with active and passive measures.

But also, when you have radar missiles and radar systems, you have to turn them on. We have several very capable joint systems that we did not have 10 to 12 years ago in our sister Services to deal with these radar systems in a much better way than sending helicopters against them. That does not mean that helicopters will not have to deal with that threat here. We have money in the budget, taking a look at IR missiles and how we are going to deal with that, not only with the Apache but also with other aircraft systems.

Senator LIEBERMAN. Yes, that was my worry. I presume we want to maintain a deep attack function for the helicopters.

General CODY. Yes, sir.

Senator LIEBERMAN. If we start to rely on some of the other joint systems, are we going to limit that function?

General CODY. No. That is why the unit unmanned and manned teaming of UAVs and the different type of mission packages, Senator Lieberman, that we are going to put on our UAVs is going to help us with the survivability of our airframes in the future against a radar threat. I probably do not want to go much further than that, here. But that is one of the things we are looking at, as well as the systems we are going to put on.

Let me just check. Colonel Rife is one of my smart guys.

What are we doing with SIRFC right now?

Senator LIEBERMAN. Come on up so you are on the mike.

General CODY. Yes. Just come right up here.

Senator LIEBERMAN. Thanks.

General CODY. He is also a great Army aviator.

Colonel RIFE. Sir, we have looked at the system, and we are continuing right now with the tech development. We are working with PM-AES to make sure that we sustain the tech base on it. We put enough in it to look at the A-kitting (software wiring) for the initial modernized aircraft airframes. But right now, the acceleration in the IR, as General Cody said, is a priority.

Senator LIEBERMAN. So the bottom line, again resource constraints, is it fair for me to conclude that we are putting considerably more money in the foreseeable future into defending against the IR threat than we are?

Colonel RIFE. Yes.

General CODY. We are because of two reasons. One is because of the threat; but two, because the technology right now to get the systems to defeat the radar threat is just not there.

Senator LIEBERMAN. The best evidence that we have, to the extent that you want to testify to it in open session, is that the IR

threat will be a greater threat in the years ahead, 5, 10 years ahead rather than later?

General SINCLAIR. Yes, sir; I think it is through the 2015 time frame. We think that will definitely be the bigger threat. I know that we cannot use Afghanistan and Iraq as a sole basis because there are other threats out there. But as General Cody said, the ones that are there, we will have the joint interdependence with other forces, as we execute those missions.

Senator LIEBERMAN. Am I making a mistake in considering the IR threat to be less sophisticated than the radar? That is my non-professional view.

General SINCLAIR. I think that is not a good assumption. I think the IR threat, especially when you look at some of the developments—the SA-18, for example, is a very capable system.

Senator LIEBERMAN. Right. Did you want to add anything, General?

General CODY. I was going to say that I am very concerned about the sophisticated IR threat.

Senator LIEBERMAN. Yes.

General CODY. I am real concerned about it. That is why we made this the number one thing. We are also doing other suppression and passive measures on all our fleet to deal with this IR threat above and beyond using active systems. I have seen the technology, and we are going to be bringing that forward here very quickly to our fleet.

Senator LIEBERMAN. Okay. Let me now pursue the question of how you intend to ensure that the almost \$7 billion invested in Comanche is not lost. Let me focus on the parts of the programs that are salvageable. We have talked about some of them. But at the risk of—let me just do it. I want to mention some from your statement and ask what the plans are to keep them alive. This is the—“We anticipate multiple”—I am reading from the statement—“to horizontally integrate leading Comanche technologies in the current and planned programs. For example, we envision harvesting”—and I am going to read each of them off and ask you to tell me what the plans are at this point—the radar electronics unit.

General BERGANTZ. Yes, sir. That is a program that the fire control radar on the Longbow Apache was depending on the Comanche to help miniaturize and make it a more reliable system. There presently are two boxes on the Apache program, a low-power RF box that generates a wave form and a programmable signal processor. Both boxes weigh about 80 pounds each.

What Comanche was doing was consolidating those into one box and getting the weight down under 120 pounds. So, it was a pretty significant effort. It was making it on the same form factor, a two-level maintenance type of a system. It was a remove-and-replace-a-bad-card system that went into one of these centralized boxes on the Apache—pull it out; put in a new card; and then send the old card back to a depot somewhere.

General CODY. The fire control computer is significant. One, it is able to pick up about 256 targets with a sweep to include radar-type targets if they are emitting and everything else. It also processes it and tells you—and you can prioritize it as a pilot. So, your first 16 priority targets will pop up on a screen.

Longbow has that now. Comanche was going to have the Longbow radar. But as Joe said, they are a much smaller package, are more reliable and easier to maintain. We do not sacrifice that when we go to 501 Block III Longbows. You will have the capability to be able to pick these targets up, especially if they emit.

Senator LIEBERMAN. So, is part of the transfer of funding going to guarantee that transfer of technology to the Longbow?

General CODY. Yes, sir.

General BERGANTZ. Right.

Senator LIEBERMAN. That is in the budget now?

General CODY. Yes, sir.

Senator LIEBERMAN. Okay. Let me go to the next: integrated communications navigation and identification avionics (ICNIA).

General BERGANTZ. Yes, sir. The ICNIA system is a system that is akin to joint tactical radio system (JTRS) that the ground forces are working on. They were working for the JTRS for the rest of the aviation development work. What we intend to do there is to look both at the box itself, which once again is a reprogrammable radio that can transmit on 12 different channels, 7 of them simultaneously. So, it does the same sorts of things that JTRS does.

We want to take a look at that and see which piece parts of that, if any, we can pull forward into the JTRS program; or perhaps this could even be a replacement for the JTRS, and we could get it sooner. We are taking a look at both options.

Senator LIEBERMAN. So again, is that money taken care of to carry out that transfer?

General BERGANTZ. Right. What we left on the contract is through the end of fiscal year 2004, the money is to keep these efforts—these six that I mentioned, sir—going. Then, as we go through our deliberations and figure out which ones we want to carry forward to other platforms, we will take the tails and put into the other platforms.

Senator LIEBERMAN. So, the same for the radar warning receiver and the fly-by-wire technology?

General BERGANTZ. Yes, sir.

Senator LIEBERMAN. How about the Comanche's Image Intensified Television (I2TV) system?

General BERGANTZ. Right. That is another. The I-squared system, the image intensification system, was somewhat better on the Comanche, because it had taken and looked at some of the problems that the Apache had been dealing with, so it was solving those by putting in a new chip and so forth. That is migrate-able also to the Apache Block III helicopter.

Senator LIEBERMAN. I take it that you have funds committed to it to help migrate it?

General BERGANTZ. I think it does right now.

Senator LIEBERMAN. Does it?

General BERGANTZ. Through 2004 it does.

General CODY. It does through 2004. As we deal with the Apache MTADS, which is the Modernized Target Acquisition Display System, and we look to upgrade the Apache, which we have money in, the Apache sensor suite. If this works, then we will put that in the Apache pilot navigation system, as well as the target acquisition system.

Senator LIEBERMAN. Let me go to a different part of the termination, which is: What is your range of estimate Comanche termination costs, which is obviously important to us generally in terms of the budget, but then important to the folks at Sikorsky and Boeing?

General BERGANTZ. Yes, sir. Let me take a whack at that. Our budget this year was roughly about \$880-some million. Of that, about \$380 million of it was sunk cost, those that had already been logged, paid, and so forth. So, that left us about \$530 million to finish out the remainder of where we were in the fiscal year when this happened.

We had a \$123 million special termination clause on the contract, which means that the Army has to be prepared to pay that, if it happened in the fiscal year at a sufficiently late time, where there was not enough money to draw out of the remaining funds. In this case, we believe there is sufficient money available to take it out of the remaining funds to pay the \$123 million, which should be a cap of what the termination costs end up being, no more than that.

So what happens now is, on May 18, we issued a termination for convenience letter to the prime contractors, Boeing and Sikorsky. It takes them a certain amount of time working with the Defense Contract Management Agency (DCMA) folks to figure out what the bills are that have yet to be paid. Those include things like termination of long-lead parts that had been ordered, relocation fees for people to have to be moved around, severance pay, all those kinds of things.

So, it is going to take them some time, and they have contractually up to a year to settle that. What we are trying to do now is figure out how we can accelerate that in some manner, so that we could possibly recoup some fiscal year 2004 funds.

Senator LIEBERMAN. So again, the maximum range on that, by your estimate, would be?

General BERGANTZ. I think right now I am saying we had \$550 million left. If you take the \$123 million out, which we could have to pay up to that amount, there could be as much as \$437 million left. But right now, we are not counting on any of that money because it depends on how long this gets dragged out.

Senator LIEBERMAN. Yes.

Senator SESSIONS. Was that contract? Was that \$123 million part of the—

General BERGANTZ. That is the special termination clause on the contract.

Senator SESSIONS. In the contract?

General BERGANTZ. In the contract, yes, sir.

Senator LIEBERMAN. You probably know that there are numbers floating around that are much higher than that, that go into the billions. Frankly, I mention them to you. I presume you have heard them. I am not in a position to be able to evaluate. But if you have heard them, when you hear them, what do you say?

General BERGANTZ. I have not heard them, sir; but I will—if I hear them—I will tell them that is not accurate. Maybe I am misunderstanding it. We have \$6.9 billion invested at—

Senator LIEBERMAN. Yes; understood.

General BERGANTZ. That is true; we have spent that amount of money.

Senator LIEBERMAN. Right.

General BERGANTZ. But to finish out the contract, we were incrementally funding it with research and development (R&D) funds every year. So, we are only obligated for what we have on this fiscal year 2004.

Senator LIEBERMAN. Is there a process for doing the kind of cost benefit analysis of subsystems regarding that termination cost? In other words, to evaluate how much has been spent to date and if, on a particular system, the termination costs get to be high enough that you begin to wonder whether it is worth going ahead and buying the system? Does the process allow for that?

General BERGANTZ. Yes, sir. A couple of the efforts that we had talked about carrying forward fell into that neck of the woods. The T800 engine, we were very close to finishing up the FAA qualification on the 802 variant of that. So, it made sense. It was one of those kind of trades where you could finish up; you could terminate it, stop it right then, and it would cost like \$12 million. Or you could spend maybe \$10 million to finish up the qualification work that was done, have the qualification, and convert that to a fixed price contract that would deliver us—I believe we are going to get 10 engines.

So, that is what we elected to do, actually keep that going, finish up, get a qualification out of it, get some engines out of it, and then be able to use those in the future, perhaps for a UAV or perhaps for one of these other systems that is being competed.

Senator LIEBERMAN. Just a last question on this round, Mr. Chairman.

Again on the fixing Army aviation chart, this is a multi-year program. My question is: Does the Army have a commitment from OSD to maintain that additional funding for Army aviation requirements over that period of time?

General CODY. Yes, sir. I briefed the Deputy Secretary of Defense, and I briefed the Secretary of Defense before we went to the President. We led off by saying this is about fixing Army aviation, not about canceling Comanche. We got a solid commitment from both the DOD leadership and the President, as well as from the Office of Management and Budget (OMB) when we went over and laid out what we wanted to do.

But more importantly, inside the Army—because you know how we work budgets—I have signed a memorandum for record, with the Army's G8, that lays out the Army campaign plan through 2010 where every bit of these dollars go. We have commitment from the Chief of Staff of the Army and the Secretary of the Army. It takes a Chief of Staff of the Army decision that he probably has to take forward above him to move the money around. I do not believe that we will have problems retaining it. This is the first time I have seen that happen.

But we understand the concerns. We are concerned because we know how we got here. There were trades made every year over 10 or 12 years.

Senator LIEBERMAN. Okay. Thanks, gentlemen. I am going to yield back to Mr. Chairman. I have just a few more questions, whenever you are done.

Senator SESSIONS. If you would like to go right now?

Senator LIEBERMAN. It is totally up to you.

Senator SESSIONS. Please, finish up.

Senator LIEBERMAN. Okay. These are kind of offshoots of where we are now.

Senator SESSIONS. I know this is an issue you have followed closely for a number of years.

Senator LIEBERMAN. Thanks, Mr. Chairman.

Senator SESSIONS. This is an opportunity to—

Senator LIEBERMAN. I have a load of questions. I am going to submit a lot of them in writing to you. But I do want to ask a few here.

What are the operational implications of having three different attack helicopter models, for example, the logistical implications? I know you talked about shortening the logistical tail. But if we are going to have three Apache variants, and reconnaissance aircraft, and a new light utility helicopter, it sure looks like we are increasing the different kinds of helicopters that we have to support from the training base to the battlefield.

General CODY. We have looked at it, Senator, and, quite frankly, we are going to end up with less mission design series when we get through this than we have right now, when you count the OH-58 Alpha, the OH-58 Charley, the UH-1, the Cobra, the A model Black Hawk, the L model Black Hawk, the M model Black Hawk, the Block I AH64 Apache Longbow and the different models of Chinooks. When we get onto this program, we are going to be able to reduce it.

But more importantly, what we did was we structured—when we restructured—and this was a total restructuring of our footprint in Army aviation. The 58,000 soldiers that General Sinclair talked about are going to be in different formations. By being able to restructure, we think we have the aviation intermediate maintenance unit and the aviation unit maintenance unit set up in such a way that we are going to be able launch, recover, and launch again these airframes much better than we are doing right now.

Would it be nice to have a pure fleet of attack helicopters that could do everything?

Senator LIEBERMAN. Sure.

General CODY. That is why we are putting money into the joint multi-role helicopter, so we can take a look. Would it be nice to have a Black Hawk that could do all of the missions? Yes. But the Black Hawk, in the case to the light utility helicopter (LUH), is a more expensive aircraft than we need to have out flying around at the National Training Center. We need one, but not a Black Hawk, because it is pretty expensive, as well as for the raid mission in homeland security.

So, we think we are doing the right thing. I will defer to General Sinclair on the training piece because he is the one that has to train the fleet.

General SINCLAIR. Senator, it will obviously be a challenge with the number of aircraft. But again, as General Cody said, the way

we restructured our maintenance into two-level maintenance and combining some of the functions, we have worked very hard to establish a new maintenance structure that can operate across that full gamut of these different types of aircraft.

Also, we have put several, I think \$293 million, into providing the right sets, kits, and outfits to maintain these aircraft, which we never invested in the proper way we should have before. So, that will be a big improvement, also.

On the light utility helicopter, that is going to be FAA-certified parts and commercially maintained. So, I think that actually is one we will out-source and have maintained, get the parts through a commercial source. So, the maintenance burden of that will be very light.

Senator LIEBERMAN. Let me ask just the last couple of questions, which in some ways comes from the last one I asked about the joint multi-role helicopter program. What is the developmental time-line that the Army has in mind for this? At this point, obviously, this is concept now. What missions would such an aircraft perform and what helicopters would it replace?

General CODY. First, the money, Senator, I think goes in, in 2008, our portion. It is concept right now. All new systems in DOD have to be born joint through the Joint Requirements Operation Capabilities Board. We are talking about the time frame of probably development starting in 2015, as the replacement for the Black Hawk, and the attack helicopter.

In the special operations regiment, which I used to command, you have the Black Hawk, the K model, that does the assault. But we also have the defense armed penetrator that does the attack role. It was not designed that way from the get-go. We probably would have saved a lot of money had we designed it up front to be multi-role.

So, there are some of the things we are looking at. That is one airframe for light—or not light but assault and attack. Then for the joint arena—the other joint program is the heavy-lift joint aircraft that we are looking at. There, we do know that there is great interest by the Navy, the Marines, as well as us, for a replacement of the CH-47, again in about the 2020 time frame, sir.

Senator LIEBERMAN. Maybe I missed it, but is there a stated interest in the other Services in the joint multi-role helicopter at this point?

General CODY. I believe the Marines—let me take that for the record, sir, so I can be more accurate with you. I know we have discussed it. OSD clearly has interest and I have talked to Mr. Wynne. There is interest there, however, we have not culled this out between the Services. I need to take that for the record and get back to you.

[The information referred to follows:]

Current interest in the joint multi-role helicopter is limited. The Joint Warfighting Concepts will define the requirements for the next generation of attack, reconnaissance, utility, and heavy lift helicopters. We are still very early in the stages of defining the requirement for this type of helicopter. As we continue to outline our helicopter requirements for the future both in the attack/reconnaissance roles and heavy lift support we see growing interest from other Services. Clearly both we and the Marine Corps will require similar capabilities in a future multi-role helicopter.

Senator LIEBERMAN. That is fine.

Thanks, Mr. Chairman. Thanks to all of you. Look, these are tough decisions. There is a lot on the line. I asked them because we have the same goals here. I want to make sure that we achieve them in the best way for the Army and for the country. So, I thank all three of you. I look forward to continuing the conversations. Thank you.

Senator SESSIONS. Very good. Talking about the Black Hawk, has the decision to buy LUHs for the National Guard impacted your Black Hawk requirements?

General CODY. No, sir. In the formations the National Guard will have, as I showed you, they will have 30 Black Hawks in their assault formations. What the LUHs are going to enable us to do with the National Guard is, by putting the first 140-some-odd that we buy, displace Black Hawks that are in our tables, our TDA outfits, like the national training centers, our MEDEVAC, and be able to displace those Black Hawks that are being used right now for the warfight and cascade them to fill the National Guard formations.

The rest of the LUHs will be replaced in the OH-58 A and C RAID craft. So, that is what it does to assist us to do that. Also, we think it optimizes them for the homeland security and homeland defense mission sets with the right sized aircraft.

Senator SESSIONS. General Bergantz, from what I understand, the Army intends to upgrade and recapitalize a number of existing UH-60A Black Hawks to the model M, as well as rebuild the remainder of the A models, but that they will not be upgraded. Last year, because of development and production issues, Congress worked with the Army to restructure the program and transfer the \$100 million from procurement to RDT&E and delay the program by 1 year. It appears that the Army is prepared to move forward with the program.

Do you believe this program is now ready to enter production?

General BERGANTZ. Yes, Senator Sessions. There are different pieces of the program. There are 193 A model Black Hawks that we intend to recapitalize, bring them in and put new parts on them and all that sort of thing, but not make them into L models. Now eventually, over time, they will start to come back in on the back end of the A and L to M model remanufacture line up in Connecticut; that will happen.

But in order to keep their half-life at around 10 years, we intend to do these 193 aircraft at the Corpus Christi Army depot to refresh them and keep them going. Then the remainder of the aircraft, about 988 A models, those are our older aircraft. Those would start to go into the A to M remanufacture line first. Then L models would go in later, and we will start to remanufacture those into Ms.

To get up to our final requirement of Black Hawks, we will have to buy probably another 80 or so new M models. We are in the process of buying new L models right now. As General Cody pointed out on the chart he showed you there, we were going to buy an additional plus 90 roughly more Black Hawks into all this.

Senator SESSIONS. The amended budget request adds Comanche funding to the UH-60M. I think you have answered that.

Let me ask a little bit more about the UAVs. You had your chart, and it had a dotted line for the UAV out there?

General CODY. Yes, sir.

Senator SESSIONS. So, we are not real sure where that is. First of all, what role would you see a UAV play?

General CODY. Sir, first, that dotted line is because we are expediting the fielding of the Shadow 200 UAV baseline to every brigade combat team that is in combat. Over time, once we continue the fielding of 41 baseline systems, which is what I believe we are fielding to the aviation brigade commander will have his two platoons of UAVs. They may be as big as the Shadow. That is what this team is going to go over and assess.

The role of that UAV platoons will be to go out in front of the aircraft, conduct screen missions, reconnaissance missions, communications relay missions on deep attacks, as well as other types of missions that will enhance the aviation brigade commander's ability to mix and match his attack and reconnaissance systems. I envision a UAV on an air assault to be able to clear the route or to do other things and make people think that is the route we are using. There are all types of mission sets that we intend to use the UAV for.

Would you like to discuss it?

General SINCLAIR. Sure. That is just on the aviation side. We are looking at UAVs for logistical resupply for possible MEDEVAC missions. So, we are looking across. We are truly doing a holistic look at every conceivable way that we could use UAVs in the future, but as General Cody said, I think reconnaissance, attack, radio relay are the primary ones, with the reconnaissance being primary for the immediate future. In a manned/unmanned team, it really becomes critical as we tie that with our aircraft.

Senator SESSIONS. Where will that training take place?

General SINCLAIR. The initial manned/unmanned training, we are anticipating, will take place at Fort Rucker. We have a restricted airspace just to the northwest by Troy; I think I showed you on the map one time. So, that will be the manned/unmanned.

The individual UAV pilot training right now is still scheduled to continue at Fort Huachuca because of their space limitations.

Senator SESSIONS. What about the opportunity to work jointly on this? Where are we on that?

General CODY. We are working jointly now on UAVs. The Air Force has deployed four of the Predator B systems in support of General Sanchez and General Abizaid. So we are using the sensor suite for whatever missions the commanders in the field need over there. We are looking at some of the other UAVs that the Marines are using. We are teamed with the Navy on the Fire Scout UAV and we are looking at that.

But in the joint world, what we are really looking at is the sensor suite and the ability to pass the situational awareness and situational understanding that the UAV brings to the whole joint team. That is being dictated to us by the joint requirements boards.

So, when we talk about "jointness" in terms of systems, it is not really the platform. It is the sensor suite and how it can send you through data links to the ground commander, or to an aircraft, or to a Navy fighter, or to a Marine fighter, or whatever. That is the

over-arching battle command architecture that the sensor suite will be able to ride on and pass that information.

Senator SESSIONS. Do you expect to be able to coordinate a JDAM with a UAV immediately? Will that be an instantaneous virtual communication?

General CODY. We have the capability right now, Mr. Chairman, to check, identify, and to do that. We have that capability. Have we trained to it? Have we practiced to it? No. That is part of what the assessment team we are sending over will be able to do.

The same is for Army UAVs. We are going to put some Viper Strike on our Hunter UAVs. General Metz, the commander of III Corps at CJTF-7, has requested and is sending an operational needs statement to us. We have 25 of the Viper Strike weapons that we are ready to put onto our Hunter UAVs, which is very similar to what the Air Force is doing with our Hellfires on their Predator Bs. So, we have that capability and that technology now, sir.

Senator SESSIONS. Briefly, the fixed wing aircraft, we understand that the Army intends to initiate a CXX cargo fixed-wing procurement to address shortfalls in the intra-theater lift identified during Operation Iraqi Freedom. Have you consulted with the Air Force? Is that not primarily an Air Force requirement? What is your thinking on that issue?

General SINCLAIR. Sir, we have studied that very extensively, especially based on the optempo that was required on especially our CH-47s. I will just use the example from Mosul, Iraq, to Kuwait which was 1,200 kilometers. We were sending four Chinooks a day just to haul supplies back and forth because of the availability of intra-theater airlift.

There has been discussions with the Air Force on this capability. It is seen as a niche capability for the Army, a limited capability to provide the intra-theater airlift for sustainment operations for a short-term duration, especially early on in operations as the Air Force will continue to flow forces into theater.

Senator SESSIONS. Is this a decision basically because someone has decided that intra-theater lift is an Army responsibility? Or is it that the Air Force capabilities do not fit the demand you have?

General CODY. We have the Sherpa now, Mr. Chairman, 40 of them. What we have, though, is we have 40 aircraft that of course were not designed for the aircraft survivability. Of course, we only have so many Chinooks and this is the scenario that General Sinclair talked to you about, where you have maybe one or two pallets worth of critical stuff for the Army, but certainly not critical enough to tie up an entire C-130. That is why we say it is a niche capability.

It has to have short takeoff and landing capability because of denied access and stuff like that, where we will be putting our combat teams. So, when we took a look at—and we have had several studies that said we need it, very similar to the way we needed the Caribou and other assets we had in Vietnam, and then when we looked at the additional homeland security requirements of moving RAID teams around and other assets that the National Guard would come up with in support of their homeland security mission,

we saw this as an aircraft bigger than the Sherpa but smaller than the C-130.

So, that is where we started shaping and taking a look at the optempo of more modular forces, more dispersed about the battlefield. As we did that, we kept coming up with a shortfall where our Chinooks and our Black Hawks could not carry it. We would be in areas where you could not put a C-130 in. Nor would you want to because of the size of the C-130, for some of the critical stuff that we would haul through these formations we had. It is a niche capability but one that we need.

Senator SESSIONS. There is no doubt that an Army or Marine combat unit has needs, often times immediate needs. Maybe they are not huge but they are critical to their munitions or their communication systems that you have to get in there.

What about the Marine Corps CH-53X units of heavy lift program? Has an analysis of alternatives been done? Do you anticipate doing that to work through how to get what you need to the warfighter?

General CODY. Yes, sir. That will be done by the joint requirements process. As we work our initial capabilities documents through, they will do an alternative analysis look across the joint force before the approval of our requirements documents. It will go through that lens.

Senator SESSIONS. Very good.

Senator LIEBERMAN. Mr. Chairman, I have asked all the questions that I wanted to ask.

Senator SESSIONS. We are going to have some written questions that we will submit to you for sure. But we thank all of you for your service. I know the Comanche was a tough call. Somebody had to make it soon or you could not go on much longer. So, you have made that. It certainly has been saleable to a lot of us in the sense that we did not know where we were going to get the money to do the things that you needed to do to modernize the fleet and to enhance it. But at the same time, we know we lost something in capability. We hope, and I trust your judgment, that it is not a major loss in capability. In fact, the overall plan will enhance our effectiveness.

Thank you for your testimony.

If there is nothing further, we are adjourned.

[Questions for the record with answers supplied follow:]

QUESTIONS SUBMITTED BY SENATOR JEFF SESSIONS AND SENATOR JOSEPH I. LIEBERMAN

COMANCHE TECHNOLOGY

1. Senator SESSIONS and Senator LIEBERMAN. General Cody and General Bergantz, the Comanche termination follows by less than a year a decision by the Army to restructure the program. Since the restructure, it appeared that the program was on track and capable of delivering a helicopter. What actions do you intend to take to ensure that the \$6.9 billion invested in Comanche to date is not completely wasted? For instance, the Comanche's well-tested engine is a prime candidate for use in a forthcoming armed reconnaissance or light utility helicopter (LUH) variant, isn't it?

General CODY and General BERGANTZ. The Defense and Army acquisition executives directed the Comanche project manager to evaluate the Comanche technologies under development and recommend continuance of the ones that are affordable and transferable. To determine which technologies are candidates for continuation the

project manager identified objective systems that could use selected technologies, and determine the short term (fiscal year 2004) and long term (2005 and beyond) continuation/integration costs to complete the development and integration for that objective system. Finally, the project manager must coordinate with the user to determine the priority of the particular capability to determine overall affordability. The project manager recommended and received approval from the Army acquisition executive for continuation of identified technologies.

The Comanche engine for use in the light utility helicopter is not a good example, the contractor, LHTEC, has self-terminated his effort. The government is currently working to settle this contract and issue a formal termination notice.

2. Senator SESSIONS and Senator LIEBERMAN. General Cody and General Bergantz, are there any parts of the program that are salvageable and transferable to other Army aviation programs? Please provide a list of Comanche technologies you expect to migrate to other platforms by platform and the anticipated date for incorporating the technology.

General CODY and General BERGANTZ. The following technologies will be transferred to other Army aviation platforms:

System	Receiving Platform	Date
Radar Electronics Unit	Apache	1st quarter fiscal year 2005
Image Intensification TV	Apache	1st quarter fiscal year 2005
Fly-by-Wire	Apache and Black Hawk	2nd quarter fiscal year 2005
Communications Antennae	Across the aviation fleet	

3. Senator SESSIONS and Senator LIEBERMAN. General Cody and General Bergantz, what other technologies do you believe you can return to the technological base for further development and possibly future application?

General CODY and General BERGANTZ. We do not currently have any technologies identified for transfer to the technology base. The acquisition development process requires that each technology funded in the systems and technology funding lines must achieve a certain level of technological maturity before being integrated on a development platform. All technologies used in the Comanche were developed, validated, and prioritized into the Comanche program. Some of these technologies will transfer to other aviation platforms, but all the technologies on the Comanche are too mature to be returned to the tech base.

4. Senator SESSIONS and Senator LIEBERMAN. General Cody and General Bergantz, what is the process for doing so, and what level of funding has been allocated for that purpose?

General CODY and General BERGANTZ. The project manager coordinated with all Program Executive Office (PEO) aviation project managers, identified technologies that were at the proper maturity level, and aligned with candidate platform mission requirements. These technologies were funded through fiscal year 2004 by the Comanche program. Fiscal year 2005 funding must be provided by the gaining platform. Also, the Comanche project manager held a technology fair at Redstone Arsenal, Alabama. He invited all other system managers to this event and briefed them on the technologies of Comanche that were available. The project manager also briefed the Deputy Assistant Secretary for Science and Technology on all available technologies for his consideration. No specific funding was allocated for continuation of technologies beyond fiscal year 2004; the Comanche budget for fiscal year 2005 and beyond was redistributed to other aviation program entirely. These programs will fund the continuation of technologies that they inherit.

5. Senator SESSIONS and Senator LIEBERMAN. General Cody and General Bergantz, please provide a list of those Comanche technologies that will not be migrated to other platforms and the reason why these technologies cannot be migrated to other platforms.

General CODY and General BERGANTZ. There were many unique technologies being developed for Comanche. Most of them are not being transferred due to the high cost of integration into a system for which they were not designed, and others are not a high enough priority for an existing system. Some of the more significant technologies not being transferred include:

- The Comanche passive low observability technology will not be transferred. The reduced radar cross section and low infrared signature features are not economically transferable to existing platforms.

- Regenerative nuclear, biological, and chemical (NBC) filters (pressure swing absorber) in the environmental control system is not being continued because existing and planned aircraft either do not have environmental control systems or they are not compatible with a regenerative filter of this type.
- 270 volt DC electrical power system including the all-electronic control system (no mechanical circuit breakers) is not being continued because existing and expected new systems will have conventional electro-mechanical systems of either 28 volt DC or 115 volt AC primary power systems.
- Advanced composite structures development is not being continued because all the (new) Army aircraft are expected to have metal structures.
- Subsystems power unit/APU is not being continued because this type of power unit that operates continuously during flight is not used on other systems.
- Composite rotor hub and blades development will not be continued because no existing or new system is expected to use composite dynamic components except for blades that already exist on some systems.
- Fault detection/fault isolation (FD/FI) is not being continued because current aircraft electronic architectures do not support this capability and none of the new aircraft systems are expected to be able to support it at the levels planned for Comanche.
- Wide field of view (FOV) helmet mounted display system and wide FOV night vision pilotage system are not being continued because other systems do not have a 52-degree FOV as does Comanche. Changing the other systems to a wider FOV would not be practical due to extensive redesign/cost.

6. Senator SESSIONS and Senator LIEBERMAN. General Cody and General Bergantz, do you have a process for determining whether it makes more sense to complete the development of certain subsystems vice paying the termination costs? For example, we understand that \$77 million has been spent to date developing the subsystem power unit (SPU) which provides electrical and hydraulic power to mission essential systems, including to the environmental control system that provides nuclear, biological, and chemical protection, rather than paying termination costs for approximately \$10 million and 1 year of work that SPU could be qualified and available for corporation into a variety of military applications.

General CODY and General BERGANTZ. Yes. The project management office and the prime contractor reviewed all major developers to determine the current status of their development, the requirement within Army aviation for their specific technology, and the cost to continue their effort compared to the cost of termination. The decision to continue or terminate was based on the following:

1. The development activity of a technology was continued if the technology was to be migrated to another aviation platform and funding for migration was available.
2. The development activity of a technology was continued if the cost to complete a given contract was less than costs associated with termination.

If one of the above criteria were not satisfied, the effort was terminated.

APACHE ATTACK HELICOPTERS

7. Senator SESSIONS and Senator LIEBERMAN. General Sinclair, is the Apache now intended to be a multi-role helicopter and also do reconnaissance missions?

General SINCLAIR. The Apache attack helicopter was designed and fielded to fill the Army's attack helicopter requirements. It continues to perform well in that role in combat operations around the world. Reconnaissance is a mission that is performed by every soldier in today's Army and from that reference point Apache crews do perform reconnaissance; however, the aircraft was designed primarily for the attack mission profile. There are not a sufficient number of Apache helicopters to fill both attack and reconnaissance roles. Procurement of the Block III Apache for a multi-role versus a more affordable reconnaissance platform would quickly prove to be a cost prohibitive plan.

8. Senator SESSIONS and Senator LIEBERMAN. General Sinclair, how does this change the requirement for reconnaissance helicopters?

General SINCLAIR. The Apache attack helicopter does not change the need for a reconnaissance platform. There is documentation going back to the 1981-1982 Army Aviation Mission Area Analysis culminating in Defense Planning Guidance 2004 Studies reflecting a critical shortfall in Army aviation's ability to conduct the armed

recon mission. The OH-58D Kiowa Warrior, developed and fielded in the 1980s was an interim, partial solution to bridge recon capabilities until the Comanche helicopter was fielded. With the termination of Comanche a significant capabilities gap in manned aerial armed recon continues to exist as the OH-58D reaches the end of system life expectancy. The Army intends to fill this gap with the light-armed reconnaissance helicopter.

9. Senator SESSIONS and Senator LIEBERMAN. General Cody, General Bergantz, and General Sinclair, while it is impossible to have the entire Army—active and Reserve—in completely modernized aircraft, one would think that, in the interest of “plug and play” modularity, there should not be widely differing capabilities among them. However, that will be the case with three different versions of the Apache. Why would you not choose to upgrade all attack helicopters to a similar Longbow configuration, even if less capable than the Block III, in the interest of standardization, modularity, and pure fleeting, vice upgrading only one third of the fleet to the Block III configuration?

General CODY, General BERGANTZ, and General SINCLAIR. The Block III Apache Longbow is the configuration that is compatible with the Army’s Future Force. The current aviation transformation plan has programmed the upgrade of the entire 501 AH-64D aircraft fleet from Block I and II aircraft to Block III. The first increment will transform 284 Block I aircraft to Block III from 2007 through 2012. This initiative reduces the number of Apache aircraft configurations from three to two.

10. Senator SESSIONS and Senator LIEBERMAN. General Cody, General Bergantz, and General Sinclair, what are the operational and logistical implications of three different attack helicopter models? How would it affect the modularity concept?

General CODY, General BERGANTZ, and General SINCLAIR. The current logistical implications of three different attack helicopter models are inherently expensive and cumbersome to manage. It requires intense management for the Army to successfully implement the modularity concept dictated by the Army Campaign Plan. The biggest single factor that drives the Army to pursue Block III is to provide an affordable attack platform that remains relevant to the Army in the Future Force. Apache is scheduled to implement open system architecture (OSA) on the Block III model. If OSA is not implemented the obsolescence costs associated with keeping Block I/II aircraft relevant to the future force are anticipated to be cost prohibitive.

11. Senator SESSIONS and Senator LIEBERMAN. General Cody, General Bergantz, and General Sinclair, conversely, what are the implications for aviation in the network-centric future force if only 284 Apache Longbows are upgraded to the digital Block III configuration?

General CODY, General BERGANTZ, and General SINCLAIR. The current Army campaign plan upgrades all AH-64D aircraft to a Block III configuration. If only 284 attack aircraft are upgraded it will limit the number of attack battalions available to integrate with the future force. This would hamper the ability of the Army’s attack fleet to participate in simultaneous operations around the world.

LIGHT UTILITY HELICOPTERS

12. Senator SESSIONS and Senator LIEBERMAN. General Cody, General Bergantz, and General Sinclair, we understand the Army will procure the LUH in fiscal year 2005 and will field it to the Army National Guard units to displace UH-60s. What is the Army requirement for an LUH?

General CODY, General BERGANTZ, and General SINCLAIR. The Army has a requirement for 322 LUHs that will be procured fiscal year 2005–2011. The Army National Guard (ARNG) will receive 204 LUHs and 118 will go to active component (AC) units. In the ARNG, the LUH will displace 60 UH-1s, 125 OH-58NCs and provide a growth of 19 aircraft above current structure. The 118 LUHs going to the AC will displace 23 UH-60s currently supporting the National Training Center and the Joint Readiness Training Center, 77 UH-1s and 18 OH-58A/Cs.

13. Senator SESSIONS and Senator LIEBERMAN. General Cody, General Bergantz, and General Sinclair, what role will the LUH play and what missions will it perform?

General CODY, General BERGANTZ, and General SINCLAIR. The LUH is being procured to replace Vietnam era UH-1 and OH-58 aircraft scheduled for retirement in the fiscal year 2004–2005 time frame. The Army is retaining limited numbers of these legacy aircraft as a bridge to continue support for continental United States

(CONUS) missions and limited roles in Europe. The LUH will perform medical evacuation (MEDEVAC) missions at the Army's three national training centers, Fort Rucker and in the four ARNG MEDEVAC companies with "generating force" mission designated to backfill CONUS-based AC UH-60 MEDEVAC units at State-side installations. The ARNG will use the LUH to perform reconnaissance missions in support of CONUS counterdrug operations and other homeland security requirements. In addition to MEDEVAC, the AC will use the LUH to provide general aviation support to the national training centers in both CONUS and Europe, as well as supporting research and development activities at our test centers in locations such as White Sands Missile Range and Aberdeen Proving Grounds.

14. Senator SESSIONS and Senator LIEBERMAN. General Cody, General Bergantz, and General Sinclair, does the Army plan to deploy the LUH on contingencies, and, if so, how does it fit in the new modularity concept?

General CODY, General BERGANTZ, and General SINCLAIR. The Army is studying the potential of deploying the LUH for contingencies in a permissive environment. An example of a permissive environment would be humanitarian assistance to a Central or South American nation. As part of the modular concept, the Army increased its total UH-60 requirement from 1,680 to 1,806 aircraft in order to support all of its wartime contingency needs. The Army used funds from the Comanche program to accelerate the procurement of 90 additional UH-60s to meet these requirements. The Army's robust UH-60 fleet eliminates the need to deploy LUH to hostile environments. There are 144 LUH aircraft in the ARNG that are included in the Army's new modular structure. These aircraft are in the reconnaissance and security battalions of the six ARNG division designated specifically for homeland security missions. If feasible, these are the LUHs that the Army may deploy in support of operations in permissive environments.

15. Senator SESSIONS and Senator LIEBERMAN. General Cody, General Bergantz, and General Sinclair, what are the operational and logistical implications of deploying LUHs?

General CODY, General BERGANTZ, and General SINCLAIR. The Army is studying the requirements for and implications of deploying the LUH for contingencies in a permissive environment. One of the expectations of a permissive environment is that the Army will have access to the same levels of commercial logistical support used to sustain the LUH fleet in the CONUS.

16. Senator SESSIONS and Senator LIEBERMAN. General Cody, General Bergantz, and General Sinclair, why would it not make more sense to buy additional Black Hawk helicopters vice yet one more platform?

General CODY, General BERGANTZ, and General SINCLAIR. The Army has increased its total requirement for Black Hawk helicopters from 1,680 to 1,806 and is accelerating procurement of these aircraft to meet all of its deployable wartime contingency requirements. The UH-60 exceeds the capabilities necessary to perform the CONUS and European based LUH missions. The LUH offers much lower procurement and operating costs while meeting or exceeding mission requirements. The Army views LUH as a prudent and economical option to meet our homeland security, training and testing requirements, enabling the Army to focus its more capable Black Hawk fleet on wartime missions.

UNMANNED AERIAL VEHICLES

17. Senator SESSIONS and Senator LIEBERMAN. General Cody, we understand the Army is deploying the Improved GNAT (I-GNAT) unmanned aerial vehicle (UAV) to Iraq this week. As you are well aware, the Army version of the I-GNAT is a Predator UAV without the satellite over-the-horizon communications capability. One of the lessons learned from Operation Iraqi Freedom (OIF) is that the Army needs a beyond line-of-sight capability in its UAVs. If that is indeed correct, why not equip the Army I-GNAT with that capability (from what we understand is a quick fix since the aircraft comes pre-wired for an airborne satellite capability) or look at acquiring the Predator B which carries 3,000 pounds external weapons or sensor payload and has beyond line-of-sight communications capability? This platform would be an excellent addition to the U.S. Army aviation inventory.

General CODY. For clarification, the I-GNAT is not an Army "program of record." In fiscal year 2003 the Army was provided a congressional plus-up of \$10 million for the purpose of procuring an I-GNAT system in order to develop the tactics, techniques and procedures (TTPs) essential for the Extended-Range/Multi-Purpose (ER/

MP) UAV program. Because of increased operational tempo (OPTEMPO) and demand for UAV capability in OIF, the Army deployed the I-GNAT to complement the Hunter UAV unit from V Corps that arrived in theater to replace two Hunter units, which re-deployed from theater and were being reset. This I-GNAT system (three air vehicles operated primarily by contractors) complements the V Corps Hunter unit, which is in theater now. According to the Project Manager (PM) UAV, the cost to integrate a satellite communication (SATCOM) capability in the I-GNAT system, which the Army procured with the fiscal year 2003 congressional plus-up, would be \$11.3 million; this would double the cost of the system. A beyond line-of-sight communications link is one of the requirements in the ER/MP Operational Requirements Document (ORD), which was approved by the Army Requirements Oversight Council (AROC) in December 2003. The Army's intent is to run a "best-value" competition for ER/MP and we expect the Predator to be one of the systems to participate in this competition. The Army's next UAV in this class will have a beyond line-of-sight capability. The Army believes that a competition is an essential part of the acquisition strategy.

JOINT MULTI-ROLE HELICOPTER PROGRAM

18. Senator SESSIONS and Senator LIEBERMAN. General Cody and General Sinclair, we understand the Army intends to initiate a program to develop a joint multi-role helicopter. The Marine Corps is committed to the V-22 and has initiated a CH-53X heavy lift helicopter program. Why do you think the Marine Corps would be interested in a joint multi-role helicopter? Have you had any discussions with Marine Corps officials concerning such an aircraft?

General CODY and General SINCLAIR. The Marine Corps V-22 is a troop transport aircraft, while the CH-53X is a cargo transport aircraft. The joint multi-role helicopter that the Army envisions would be designed to provide a single system to accomplish reconnaissance, and attack currently performed by Kiowa, and Apache in the Army, and the Super-Cobra in the Marine Corps. The concept is to develop multi-service requirements and capabilities, and optimize the platform and mission equipment package design with state-of-the-art weapons, sensors, and survivability equipment to provide a common multi-role platform for the Services to conduct these missions. While we have not communicated directly with the Marine Corps, we have worked with the Office of the Secretary of Defense on a joint rotorcraft roadmap for future development.

19. Senator SESSIONS and Senator LIEBERMAN. General Cody and General Sinclair, what developmental time line is the Army considering for the joint multi-role helicopter?

General CODY and General SINCLAIR. Currently we are planning on initiation of joint multi-role helicopter program in fiscal year 2009. Our expectation is a 5-year development (SDD) followed by a 5-year production and deployment period. However, these are very rough planning timeframes. A more accurate timeline will be developed when we have an approved set of requirements on which to base our planning.

20. Senator SESSIONS and Senator LIEBERMAN. General Cody and General Sinclair, conceptually, what missions would such an aircraft perform, and what existing helicopters would it replace?

General CODY and General SINCLAIR. We are still in the conceptual stages of this program and do not have a current validated requirement for the joint multi-role helicopter. However, we do envision an aircraft capable of performing both the attack and reconnaissance missions in all operational environments. We see an aircraft equipped and designed to conduct security type of operations as we see today in Iraq or if needed conduct attack operations as we witnessed during the early stages of the war by the 101st Air Assault Division. Eventually, we see this aircraft replacing the AH-64, the Marine Corps Cobra, and our armed reconnaissance helicopters.

21. Senator SESSIONS and Senator LIEBERMAN. General Cody and General Sinclair, does the Army now have any renewed interest in a Joint Transport Rotorcraft?

General CODY and General SINCLAIR. The Army has conducted a study on the employment of the future force that requires the aerial movement of forces to operational depths. We envision a Joint Transport Rotorcraft as one of the options to accomplish this mission. The Army currently has the Air Maneuver and Transport

operational requirements document (ORD) in staffing which potentially could be a solution to this requirement.

LOGISTICAL TAIL

22. Senator SESSIONS and Senator LIEBERMAN. General Cody, in your written statement you say your plan shortens the logistical tail. However, it would appear that three Apache variants, yet another reconnaissance aircraft, and new light utility aircraft, in fact, increase the different types of helicopters you have to support from the training base to the battlefield. It seems that this aviation plan would lengthen the logistical tail if the Army deploys all of those types of helicopters. Why do you say it would shorten the logistical tail?

General CODY. Presently there are three variants of the Apache: the AH-64A models (primarily located in the Army National Guard) and two variants of the Longbow (Block I and II configurations). The Army plans to upgrade all Longbows to the Block III variant. This will reduce the total Apache variants to two: the AH-64A models in the Army National Guard and Block III Longbows primarily in the active component. The new reconnaissance helicopter will retire the Vietnam-era OH-58D Kiowa Warrior, reducing logistics requirements for scout aircraft. The LUH program will be a low-cost, commercial off-the-shelf (COTS) procurement that the Army plans to sustain using Federal Aviation Agency (FAA) certified parts. The aircraft will be used for administrative and training center support, medical evacuation, and homeland security missions. As such, it is designed for deployments within the United States and limited to other deployments in permissive, non-hostile environments. The Army plans to procure 322 LUH in order to retire 880 OH-58A and UH-1 helicopters and, in doing so, significantly reduce our logistic requirements. Our long-term Aviation Logistic (AVLOG) Transformation Strategy is a holistic approach that seeks to reduce the aviation logistics tail by transitioning from the current maintenance intense system to a proactive condition based maintenance (CBM) approach by fiscal year 2015. This transition to CBM is a multifaceted approach, which employs multiple tenants such as commonality, technology integration, automation, retooling, and restructuring units for modular maintenance support. Details of the AVLOG transformation include plans to pursue a common engine for its Apache and Black Hawk helicopter fleets, a common avionics architecture system (CAAS) cockpit for its Chinook and Black Hawk fleets, plus integrate fly-by-wire technology and improved drive train technologies into future aircraft fleets. This commonality will reduce the variety of spares required on the battlefield and reduce strategic transportation requirements. In addition, the Army is capitalizing on advancements in technology. Beginning in fiscal year 2005 the Army will field a new standardized Aviation Maintenance Management Information System and system architecture to aviation units. This enhanced Unit Level Logistics System-Aviation (ULLS-A) version 6, will be fielded to units commensurate with transformation to the Multifunctional Aviation Brigade (MFAB) structure. ULLS-A will bridge the technology gap pending release of the Global Combat Support System-Army, scheduled for 4th quarter, fiscal year 2008.

The Program Executive Office-Aviation has teamed with the Program Manager, Digital Source Collection (DSC) to integrate cockpit voice recorders and flight data recorders, as well as health usage monitoring systems (HUMS) capable of providing embedded diagnostics and prognostics on aircraft platforms. The application of HUMS will provide valuable aircraft flight regime and usage data enabling the U.S. Army Materiel Command's, Research, Development and Engineering Command (RD&ECOM) to develop appropriate component replacement timelines, that will enable item managers to better forecast when and where parts are need. We are resourcing the aviation classification repair activity depots to support the National Maintenance Program. This initiative invests \$84 million in fiscal year 2005-2006 in the procurement of depot level repair tools to increase the Army National Guard aviation classification repair activity depots (AVCRADs) repair capability in both peacetime and war. Additionally, we are restructuring Army aviation with robust modular aviation maintenance organizations. We are reorganizing aviation maintenance organizations from the current three levels of maintenance, which employs redundant echelons of pass-back aviation maintenance, to tailored, more robust and mobile aviation maintenance units. This modular maintenance concept allocates personnel, tools, and equipment resources where they are most effective. This change will result in two echelons of robust aviation maintenance consisting of a field and sustainment echelon. The field echelon of maintenance is resident in each aviation unit of employment (UEX) or MFAB. The MFAB will have one organic aviation support battalion, capable of performing aviation intermediate maintenance (AVIM)

and individual battalions will have an aviation support company (ASC) comprised of modular aviation support platoons, which provide aviation unit maintenance (AVUM) support to flight companies. The second echelon is the sustainment base, which is comprised of the AVCRAD, the organic aviation depots and also includes the original equipment manufacturers. The goal is to eliminate redundancy where possible while retaining core capabilities. These long-term efforts will culminate in significant reductions to the aviation logistics tail beginning in fiscal year 2006.

QUESTION SUBMITTED BY SENATOR JOHN MCCAIN

COMBAT SEARCH AND RESCUE RADIO

23. Senator MCCAIN. General Bergantz and General Sinclair, it is my understanding that the Services, and in particular the deployed forces, have a critical need for additional combat search and rescue (CSAR) radios. Further, reports from the field indicate that the Global Positioning System (GPS)-112 and PRCs currently fielded have been doing extremely well in CSAR missions with downed aircrews. With the delay in the Combat Survivor Evader Locator (CSEL) development, testing, and slip in the approval for production, do you need additional off-the-shelf CSAR radios to satisfy your urgent mission requirements?

General BERGANTZ and General SINCLAIR. The AN/PRC-112 CSAR radios have performed very well in CSAR missions with downed aircrews and Special Operations Forces. Because the Army did not procure the total required quantity of this radio, we were forced to redistribute radios from the training base to deploying forces. This redistribution has enabled the Army to adequately meet urgent CSAR radio requirements pending the production of the CSEL radio.

The CSEL radio recently completed the Multi-Service Operational Test and Evaluation (MOTET). The Air Force Operational Test and Evaluation Center (AFOTEC) rated CSEL as operationally suitable and effective. These results support a favorable full rate production decision expected in the June-July 2004 timeframe. In anticipation of this decision, the Army Strategic Planning Board (ASPB) recently approved the CSEL fielding plan. The fielding plan prioritizes units based on the Unit of Action (UA) modularity initiative and deployment schedules. Initially, the fielding plan will leverage on-hand low rate initial production (LRIP) quantities pending full rate production deliveries. The 3rd Infantry Division will be first unit equipped in August 2004. In conjunction with fielding the CSEL, the Army will simultaneously redistribute the AN/PRC-112 to other units. This approach ensures that units will have a CSAR radio capability provided by the CSEL or the AN/PRC-112.

Unfortunately, the Army is unable to procure the total CSEL requirement of 18,531 radios. Based on current funding, the Army will procure approximately 43 percent (8,816 radios) of the required quantity. The result is that until such time as the Army can increase CSEL procurement, the forces will have a combination of CSEL and the AN/PRC-112. While the radios are interoperable in the line-of-sight (LOS) voice mode, there are training and sustainment implications with maintaining two CSAR radios.

QUESTIONS SUBMITTED BY SENATOR JAMES M. INHOFE

IDENTIFIED INTRA-THEATER LIFT SHORTFALLS

24. Senator INHOFE. General Cody, in your statement, you justify reallocating resources from the Comanche program to procure approximately 25 cargo fixed wing aircraft. Specifically, you have based this decision on "identified intra-theater lift shortfalls." Where were the shortfalls in the global war on terrorism which justify this new fixed wing requirement not currently met by C-130s? Can you provide empirical data, which justify this requirement?

General CODY. The requirement for the Army future cargo aircraft is based on the transport of critical, time sensitive supplies and personnel to forward deployed units. It will be a joint use airframe that will transport heavy, outsized and palletized cargo from the SPOD/APOD over a non-secure, asymmetrical battlefield. It is not in competition with the C-130 but is additive and compatible to the C-130 and its existing intra-theater mission. The Army currently utilizes the C-23 Sherpa to conduct this mission but it has proven to have severe limitations in high/hot conditions and is not an effective cargo aircraft. The requirement to support these ever increasing logistics demands to forward deployed troops, over extended distances, require increased air delivery that is not available. There is currently a shortage of strategic lift (MRS-05) and with Service requirements growing will con-

tinue to put strain on the availability and timeliness of intra-theater support. Three combatant commanders have specifically identified the need for increased intra-theater support and in one case the need for an airframe that has short take-off and landing capabilities (STOL). The smaller cargo aircraft that Army is looking at to replace the C-23 has that STOL capability and will be compatible with the C130 and the CH-47 logistics delivery systems.

25. Senator INHOFE. General Cody, how well did U.S. Transportation Command (USTRANSCOM) meet the combatant commander's (COCOM) intra-theater airlift needs?

General CODY. USTRANSCOM met our inter-theater requirements; however, it could not meet the intra-theater requirements generated by the high operational tempo (OPTEMPO) and size of the area of responsibility (AOR). This OPTEMPO required the Army to pull prime tactical helicopters assets to perform routine daily re-supply mission.

26. Senator INHOFE. General Cody, what fixed wing aircraft are you planning to buy to meet this need?

General CODY. The specific airframe has not been identified as Army is still evaluating what vendors can meet the requirements. The future cargo aircraft (C-XX cargo) will be a twin engine propeller cargo aircraft that has the capability to carry 18,000 lbs. internal, 300 knots airspeed, short takeoff and landing (STOL), 2,400 nautical mile range, three 463L (standard United States Air Force) pallets, 30,000–25,000-foot service ceiling and capable of casualty evacuation (CASEVAC) for return trips. It will be roughly half the size of the C130 but have commonality with that asset to supplement its mission.

27. Senator INHOFE. General Cody, have you already developed a Program Objective Memorandum (POM) for this new requirement in the Future Years Defense Program (FYDP)?

General CODY. The funding from Comanche to procure 25 systems in the POM is only a portion of the overall cargo program. Planned funding is currently in the POM for 37 systems. There is additional funding in the out years to continue procurement of this aircraft towards a total requirement of 128 aircraft. Part of the funding from Comanche termination was applied towards this program because of the growing need in Operation Iraqi Freedom/Operation Enduring Freedom for intra-theater support.

REQUIREMENTS OF U.S. SPECIAL OPERATIONS COMMAND

28. Senator INHOFE. General Cody, General Bryan Brown, Commander, U.S. Special Operations Command (USSOCOM), has previously stated that he needs additional resources. How are you planning to reallocate Comanche resources to meet his specific requirements at USSOCOM?

General CODY. The Comanche funding was redistributed only to major force program (MFP) 2 (Army) programs. The Army did not fund any MFP-11 requirements (Special Operations Forces (SOF) specific) from the Comanche funding. However, the reallocation of Comanche funding will address (both directly and indirectly) some SOCOM requirements. For instance, the Army identified \$74 million to fund a SOCOM-identified shortfall in aircraft survivability equipment. Additionally, the Army is investing in a common cockpit for the UH-60 and CH-47. Since this cockpit is based on SOCOM's cockpit, this will now become a common program between Army and SOF. The positive impact for SOF is that given this increased production requirement will reduce costs for SOCOM. Additionally, SOCOM will benefit from the Army's investment in CH-47F procurement, aircraft survivability equipment, standardized maintenance program, hydra rockets, flares, UH60-M, and increased platform commonality across all systems.

29. Senator INHOFE. General Cody, what kinds of capabilities do we need to add to enhance the Special Operations Forces (SOF) mission?

General CODY. We need to continue to fund SOF aviation requirements for Army common aviation survivability equipment (ASE) and ammunition, especially in precision rockets. Additionally, I see a growing need for SOF aviation to have a multi-purpose cargo fixed wing aircraft that will support full range of operations to include transport of critical personnel and equipment.

CURRENT FORCES AND FUTURE INVESTMENT

30. Senator INHOFE. General Cody, many members have asked questions of the Army during the past several years about the balance of maintaining the current forces and investing in the future. The Army has invested tremendously in Future Combat Systems (FCS), and some feel they have neglected some of the so-called legacy systems. What are your thoughts on this balance?

General CODY. We are in the process of adjusting the balance between our current and future forces to reflect the realities of an Army at war as we build our fiscal year 2006–2011 program. Our past assumptions about a “window of opportunity” for transformation and the processes developed for a Cold War Army are no longer relevant to the current security environment. The Army continually seeks to balance resources and effort between the current and future force. Since 11 September 2001, the Army has put a great deal of emphasis on the current force, while continuing to transform. To support the global war on terrorism, we have spent in excess of \$5.5 billion over fiscal year 2003–2004 addressing emergent central force requirements. We are in the process of resetting over 950 helicopters, 5,700 tracked vehicles, and 46,000 wheeled vehicles from our current force that took part in Operation Iraqi Freedom. The recent termination of the Comanche program will enable us to procure a mix of approximately 800 light utility, armed reconnaissance, UH–60 Black Hawk, and CH–47 Chinook helicopters; provide aviation survivability equipment for the current fleet; and invest in aviation logistics automation to improve sustainment operations. However, the Army remains committed to transforming our equipment, organizations, training, doctrine, soldiers, and installations. We have already seen numerous benefits of past efforts to transform our force, from digitized battle command systems distributed throughout the force to our first Stryker Brigade Combat Team that is currently engaged in Operation Iraqi Freedom. We continue to find opportunities to spiral future force technologies to the current force. Through a continuous cycle of innovation, experimentation, experience, and change, the Army will improve its capabilities to provide dominant land power to the joint force now and in the future. We are fully committed to fielding Future Combat Systems units of action this decade. These forces will contribute significantly to Army capabilities and complement the enhanced current force we are generating today. The end result will be a joint and expeditionary Army with campaign qualities.

31. Senator INHOFE. General Cody, what are your plans for maintaining today’s forces and investing in the future?

General CODY. The Army continually seeks to balance resources and effort between current and future forces. Over the past 30 months, the Army has put a great deal of emphasis on the current force, while continuing to transform. Today’s Army is committed throughout the world as we fight the global war on terrorism. Our commitment to the current force success can be seen as we provide what is needed to keep our forces manned, trained, equipped, and sustained. We are committed to completing reset 10/20 delayed desert damage maintenance and aviation special technical inspection and repair for equipment that is returning from current operations. Despite the demand on our current force, we remain dedicated to our future force. Our commitment to the future force can be seen in our research, capabilities, and system support programs. We have already seen numerous benefits of past efforts to transform our force, from digitized battle command systems distributed throughout the force to our first Stryker Brigade currently engaged in Operation Iraqi Freedom. We will continue to find opportunities to spiral future force technologies to the current force while using current force lesson learned to inform the future force.

32. Senator INHOFE. General Cody, how does Army aviation tie into joint fires?

General CODY. Army aviation plays an integral role in the employment of joint fires. With the use of Apache and Kiowa Warrior sensors such as forward looking infrared radiometer (FLIR), fire control radar (FCR), and thermal imaging system (TIS) to locate and identify hostile targets combined with their advanced designation systems (laser and global positioning system (GPS)), Army aircraft are able to designate for the employment of joint air and surface fires. Army aviation routinely conducts Joint Air Attack Team (JAAT) missions at the lowest command levels in support of the ground maneuver commander. JAAT missions integrate the combined capabilities and effects of Army aviation, close air support, and indirect fires at a single point on the battlefield, providing massed synchronized joint fires to overwhelm and destroy enemy forces.

Army aviation in the future force will provide supporting and complementary fires, and other maneuver support at extended distances, or in conditions that pre-

clude timely and effective use of ground systems. Aviation crews will employ their sensors in cooperative engagements for timely and accurate fires, to include joint naval or air fires. Additionally, the integration of Army and Joint Non-Line of Sight (NLOS)/Beyond Line of Sight (BLOS) fires by an armed reconnaissance aircraft, coupled with its contribution to situational awareness, will enable massing of effects without massing units. Aviation will provide man-in-the-loop terminal control of joint precision effects even after launch, supporting the employment of improved precision munitions and their effects.

ORGANIZATION OF UNITS

33. Senator INHOFE. General Cody, the Air Force organizes many of its wings into a concept called associate/Reserve wings where they blend active, Guard, and Reserve personnel into one wing. What do you think of applying a similar concept to the Army's high demand/low density units?

General CODY. The Army has similar opportunities and unit programs. Our multi-component units include elements from two or more of the three components (active, Guard, and Reserve). In these units, we take advantage of skills derived from civilian occupations that have military application. Many of these units exist in our high demand/low density combat service support (CSS) structure. The size of the unit, mission complexity, and equipment requirements impact the viability of this option. Larger units with more complex mission sets require more collective training which the Reserve components generally do not have the time to conduct prior to mobilization. This makes a multi-component unit as a whole less deployable and responsive. Therefore, implementation of this concept proves too difficult for most combat and combat support units of battalion or greater size in terms of developing into cohesive and effective fighting forces. Additionally, Army missions are more enduring than the Air Force missions. As a result, Army units are less likely to have the opportunity to change teams or crews as readily as the Air Force does with its flight crews. This concept works well for small, modular units, with discrete missions that directly correlate to civilian skills. The Army will continue to employ the multi-component program where it works, for these types of high demand CSS skill sets. It is less conducive for larger units with complex missions involving direct combat due to the extensive and specialized collective training required.

VERY IMPORTANT PERSON FLEET

34. Senator INHOFE. General Cody, I think you are aware that each of the Services, to include the Reserve and Guard, has a very important person (VIP) fleet of fixed wing aircraft. Additionally, each Service has an independent tasking agency or operations center. Do you think USTRANSCOM ought to have COCOM of the operational support airlift (OSA)/VIP fleet?

General CODY. USTRANSCOM is currently scheduling all Army OSA fixed wing aircraft with the exception of the three long-range and three short-range aircraft assigned to the Headquarters, Department of the Army at Andrews Air Force Base in Maryland. The Office of the Secretary of the Army schedules these aircraft. The aircraft are in direct support of the Army's most senior leadership and when requested, the Office of the Secretary of Defense, Congress, and when approved by Office of the Secretary of Defense, other Federal agencies on a reimbursable basis. This is the most effective and efficient scheduling process to provide short turnaround, mission tailored support to the Army's senior leadership.

35. Senator INHOFE. General Cody, especially now, as the Army is transforming, don't you think that each of the Service's independent (fixed wing) OSA/VIP fleets could be consolidated into a single (possibly joint) organization reporting directly to Joint Operational Support Airlift Center (JOSAC) under USTRANSCOM?

General CODY. Such central scheduling provides no advantage over the current process of intra-service coordination at the seat of government. This process provides maximum flexibility to each Department to support their significantly different Title X responsibilities. This independent scheduling process coupled with an informal but highly effective intra-service coordination agreement allows each Department to support our leadership, and when operationally necessary to assist our sister Services, the Office of the Secretary of Defense, Congress, and other Federal agencies.

36. Senator INHOFE. General Cody, at a minimum, shouldn't JOSAC have command and control (C2) over the Service's OSA/VIP fixed wing fleet?

General CODY. The current process allows each Service to budget its own operational requirements. Placing command and control under JOSAC would provide no discernible advantage to the military departments, nor does JOSAC schedule outside continental United States (OCONUS) missions whereas the individual VIP fleets are staffed to accomplish both short and long-range missions when cost effective. Since the terrorist attacks of 11 September 2001, the Army has had an extremely high operational tempo with many short notice requirements to move the Army's senior leadership both CONUS and OCONUS. Having scheduling authority over our small detachment adds to the flexibility to meet these enormously vital mission needs in the shortest possible amount of time, and still guarantee immediate recall capability to our most senior leaders. The independent scheduling of small fixed wing detachments gives the Services a critical advantage in the worldwide efforts on the global war on terrorism. This is essential since the Secretary of the Army is the sole arbiter in cases of competing requirements. This authority of the Secretary and the knowledge that he will resolve scheduling conflicts is a tremendous incentive to resolve the conflict at lower levels of authority. This flexibility would disappear with command and control relinquished to the United States Transportation Command (USTRANSCOM).

QUESTION SUBMITTED BY SENATOR HILLARY RODHAM CLINTON

PROCUREMENT OF FIRE SCOUT VEHICLES

37. Senator CLINTON. General Cody, General Bergantz, and General Sinclair, with cancellation of the Comanche program, the Army will be increasingly dependent upon the use of unmanned vehicles to perform missions that traditionally were performed by manned aircraft. The FCS program has selected the Fire Scout Vertical Takeoff and Landing Tactical Unmanned Air Vehicle (VTUAV) for its Class IV requirement, and it is also being considered for the Class III requirement. Since Fire Scout is now in low rate initial production for the Navy, do you support accelerating the procurement of Fire Scout vehicles for FCS and increasing the quantity of Fire Scout systems to be purchased?

General CODY, General BERGANTZ, and General SINCLAIR. The FCS Program of Record, as approved by the Under Secretary of Defense (Acquisition, Technology, and Logistics), is structured to meet the Army's transformation objective to achieve Initial Operational Capability (IOC) of the first Increment I FCS-equipped Unit of Action (UA) in 2010 with Full Operational Capability (FOC) in 2012. Currently, the FCS Program's Fire Scout Class III/IV UAV development effort and fielding plan, in coordination with the Navy, support achieving this objective. Thus, there is no Army requirement to accelerate procurement of Fire Scout for the FCS Program nor to increase procurement quantities.

Additionally, the Navy Fire Scout UAV now in LRIP is the RQ-8A. However, both the Army and the Navy are procuring the RQ-8B which includes a different main rotor and upgrades to the transmission among other improvements. Furthermore, the intelligence, surveillance, and reconnaissance (ISR) and target designation (TD) mission payloads and tactical communications relay mission payloads being fielded with the Navy Fire Scout are not the same as those being developed for the Fire Scout FCS Class III/IV UAV. Unique ISR, TD, and communications payloads as well as manned-unmanned teaming capabilities are required in order to ensure that the Fire Scout FCS Class III/IV UAV is a seamlessly integrated capability on the FCS Network, currently under development in the FCS Systems Development and Demonstration (SDD) phase. As such, accelerated fielding of the Navy Fire Scout would not meet FCS Class III/IV UAV required networked-capabilities.

[Whereupon, at 3:47 p.m., the subcommittee adjourned.]

